# Between Master Plans and Advanced Information Technology: is there a site for Brazilian Cities in the Global Network? The Case of Porto Alegre

## Thesis

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# Between Master Plans and Advanced Information Technology: is there a site for Brazilian Cities in the Global Network?

## The Case of Porto Alegre

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**Abstract**

This thesis consists of an investigation of the impact of information technology on participatory planning practices and social changes in urban governance. A multidisciplinary approach is adopted in which three fields intersect and link with information technology - these being urban space, urban planning and socio-cognition. This framework is derived from four theoretical perspectives: Castells' theorisation of the network society, the paradigmatic shift in the urban planning praxis towards a communicative rationality, Piaget's genetic epistemological Constructivism, and the current concept of cyberspace. It is argued that informational space is a social construction and that knowledge may be considered as the raw material to fight social inequality. A qualitative socio-cognitive perspective is thus employed to study the rise of citizenship movements and enable an investigation to be carried out into social relations and the development of knowledge in the new digital environment, having the city of Porto Alegre, Brazil, as a case study. The inquiry as a whole seeks to improve our understanding of the kind of social learning processes that might empower citizens' participation by exploring grassroots participatory practices in emergent informational space. The work involved undertaking an examination of social relations within the institutional digital environment by means of a socio-cognitive clinical method. Semi-structured and open interviews were carried out to study 30 selected subjects (local politicians, academics, technocrats, and community leaders) in Porto Alegre - a city which has been associated with radical democratic planning practices over 12 years, with an effort to build participatory informational space. The investigation of the characteristics of social relations and participatory practices in the urban governance context and the initial stages of institutional digital environments provided evidence that an embryonic process of citizenship empowerment was emerging in informational space, associated with radical changes in cognitive learning processes. This is a dialectical process that involves the re-articulation of local power relationships in the struggle to build networks of social change.

Dedicated to the memory of my father, Alcyone
and to the memory of my grandmother, Maria.

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**Acronyms and Abbreviations**

BNDES - *Banco Nacional de Desenvolvimento Economico e Social* (Brazilian social and economic developmental bank)

BNH - *Banco Nacional de Habitação* (Brazilian Housing National Bank)

CAD - Computer Aid Design

CAR – *Centro Administrativo Regional de Porto Alegre* (Regional Administrative Centre of Porto Alegre)

CASA - Centre for Advanced Spatial Analysis, University College London

CEPERGS - *Centro de Professores do Estado do Rio Grande do Sul* (the Rio Grande do Sul teachers' trade union)

CG - *Comite Gestor da Internet no Brasil* (Brazilian Internet Steering Committee)

CIAM - *Congrès Internationaux d'Architecture Modern*

CNPq - *Conselho Nacional de Pesquisa* (Brazilian National Council for Scientific and Technological Development)

COP - *Conselho do Orçamento Participativo* (Participatory Budget Council of Porto Alegre)

CPS - Collaborative Planning System

CRC - *Coordenação das Relações com a Comunidade da Prefeitura Municipal de Porto Alegre* (Community Relations Coordination)

CROP - *Coordenador Regional do Orçamento Participativo da Prefeitura Municipal de Porto Aelgre* (Regional Co-ordinator of the Participatory Budget of Porto Alegre)

DEMAE - *Departamento Munucipal de Agua e Esgotos de Porto Alegre* (Water and Sewerage Municipal Department of Porto Alegre)

DEMHAB - *Departamento Municipal de Habitação de Porto Alegre* (Housing Municipal Department of Porto Alegre)

EMBRATEL - *Empresa Brasileira de Telecomunicações* (Brazilian Telecommunications Enterprise)

FACLAM - *Foro Latinoamericano de Ciencias Ambientales* (Latin American Forum of Environment Sciences)

FIPLAN - *Programa de Financiamneto do Planejamneto Urbano* (Brazilian Program for Financing Urban Planning)

FRACAB - *Federação Rio-Grandense das Associações Comunitárias e de Bairros* (Rio-Grandense Federation of the Borough and Neighbourhood Associations)

GAPLAN *Gabinete de Planejamento da Prefeitura Muncipal de Porto Alegre* (Planning Office of Porto Alegre)

GIS - Geographical Information Systems

IBAM - *Instituto Brasileiro de Administração Pública* (Brazilian Institute of Civil Administration)

IBGE - *Instituto Brasileiro de Geografia e Estatística* (Brazilian Institute of Statistics and Geography)

INPE - *Instituto Nacional de Pesquisas Espaciais* (Brazilian National Institute of Spatial Research)

INTERNET - the linkage of a large number of computers around the world into one huge network

IPTU - *Imposto Predial e Terrotorial Urbano* (Brazilain progressive taxes on urban real state property)

IT - Information Technology

JAVA - a programming language that enables Web pages to contain miniature programs (applets)

MCT - *Ministério de Ciencia e Tecnologia* (Brazilian Ministry of Science and Technology)

MIT - Massachusetts Institute of Technology

NCGIA - National Centre for Geographic Information and Analysis, consortium: University of California Santa Barbara, the State University of New York at Buffalo and the University of Maine

OP - *Orçamento Participativo de Porto Alegre* (Participatory Budget of Porto Alegre)

PDDU - *Plano Diretor de Desenvolvimento Urbano de Porto Alegre* (Master Plan for Urban Development of Porto Alegre)

PDDUA - *Plano Diretor de Desenvolvimento Urbano e Ambiental de Porto Alegre* (Master Plan for Urban and Environmental Development of Porto Alegre)

PDT - *Partido Democratico Trabalhista* (Brazilian Democratic Labor Party)

PMDI - *Plano Municipal de Desenvolvimento Integrado* (Brazilian Municipal Plan for Integrated Development)

PROCEMPA- *Empresa Muncipal de Processamento de Dados de Porto Algre* (Data Processing Company of Porto Alegre)

PROCERGS - *Empresa Estadual de Processamento de Dados do Rio Grande do Sul* (Data Processing Company of Rio Grande do Sul State)

PT - *Partido dos Trabalhadores* (Brazilian Workers' Party)

RNP - *Rede Nacional de Pesquisa* (Brazilian National Network for Education and Research)

SERFHAU - *Serviço Federal de Habitação e Urbanismo* (Brazilian Federal Service of Housing and Urbanism)

SMAM - *Secretaria Municipal do Meio Ambiente de Porto Alegre* (Municipal Secretariat of Environment of Porto Alegre)

SMED - *Secretaria Municipal de Educação de Porto Alegre* (Municipal Secretariat of Education of Porto Alegre)

SMOV - *Secreataria Municipal de Obras e Viação de Porto Alegre* (Municipal Secretariat of Building of Porto Alegre)

SPM - *Secretaria Municipal do Planejamento de Porto Alegre* (Municipal Secretariat of Planning of Porto Alegre)

SMS - *Secretaria Municipal de Saude de Porto Alegre* (Municipal Secretariat of Health of Porto Alegre)

UAMPA - *União das Associações de Moradores de Porto Alegre* (Union of Neighbourhood Associations of Porto Alegre)

UFRGS - *Universidade Federal do Rio Grande do Sul* (Federal University of Rio Grande do Sul)

VR - Virtual Reality

VRML - Virtual Reality Modelling Language

WWW - World Wide Web

## Introduction

The aim of this thesis is to investigate how emergent advanced information communications technology is changing the ways we live, build and plan cities. The study focuses on the rise of *informational space* within the peripheral nodes of the global information network of cities and the ways information communication technology can empower new forms of *citizenship* in the context of the urban governance of Porto Alegre, Brazil.

The current academic issue about *informational space* which is examined in this thesis is highly controversial. However, the central question that stems from the empirical observation of social changes in urban space is quite simple - what will the emergent information technologies do to the city?

An attempt to answer this question can draw on wide range of hypotheses and the theoretical ways of conceptualising subjects or observed phenomena in society depend on the different epistemological positions social scientists adopt. In this thesis, the focus is on social theories that envisage urban space as a social construction. By observed phenomena is meant the social changes which are taking place in urban space, and this observation is a means of explaining the rise of *informational space,* conceived as social construction.

In the early 1970s, Lefebvre made a significant contribution to the concept of social space. His conceptualisation of the *'production of space'* was a breakthrough in the development of social space thinking. The chief question which was raised about the social space concept, at that time, was *'how to bridge the gap between the theoretical realm and the practical one'*. This means the gap between mental and social, between the space of the philosophers/epistemologists and the space of people who deal with material things. Other theoreticians like Lefebvre had to try *'to discover or construct a theoretical unity between "fields"'*. He suggested that the following fields should be taken into account: *first, the physical – nature; secondly, the mental, including logical and formal abstractions; and, thirdly, the social* (Lefebvre, 1999: p.4 and p.11).

Lefebvre's theoretical conceptualisation must not be taken as an attempt to encompass *'totality'*. He lays down a fundamental theoretical and methodological principle by means of which his approach aims both to *'reconnect elements that have been separated and to replace confusion by clear distinctions'*. He says there is a need to make a distinction between what he calls *'the problematic of space'* and *'spatial practice'*. The *'problematic'* can only be formulated on a theoretical plane, while the *'practice'* is empirically observable (Lefebvre, 1999: p.413-414).

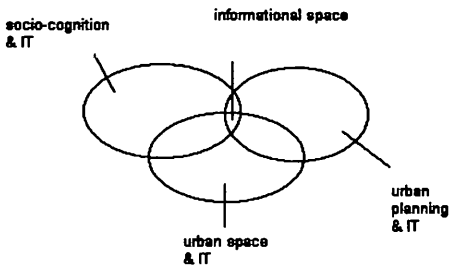
If we apply Lefebvre's epistemological position to the current debate on the re-conceptualisation of space within the human sciences, the expression *'informational space'* may sound strange. Yet, somehow the debate seems to face the same theoretical and methodological dilemmas, even though the transformation of society into the *information age* has significantly shifted the urban agenda.

The theoretical conceptualisation of *informational space* is complex and controversial, because it encompasses a great number of divergent epistemological positions in *social theory* which have a bearing on the concepts of *society, space* and *time*. (Lefebvre, 1999; Harvey, 1989; Soja, 1996 and Castells, 1996) Three theoretical challenges must be faced: a) the fundamental question of how to define space b) determining the technological nature of *informational space* (loosely conceived as *cyberspace*) c) the question of linking the separate, but interrelated, dimensions of space – material space, physical space of everyday life (*real space*) and intellectual, representational and abstract space (*virtual space*). This connection is, in fact, made possible by the use of emergent advanced information technology.

In this thesis, the third of these challenges is faced by following both a theoretical and empirical path. An attempt is made to link the debate about the *problematic* of *informational space* to the analysis of the *spatial practice* of *informational space,* by applying a research mode of interrogation. This research has been empirically grounded by linking the problematic of *insurgent citizenship* and *social exclusion* to the use of advanced information technology, in the case study of urban governance and participatory practices in Porto Alegre.

The epistemological position outlined above supports our design of a multidisciplinary theoretical framework. The research study focuses on the field of knowledge which arises from the interrelationship between three academic fields - *urban space*, *urban planning* and *socio-cognition* and the ways they can be linked to the field of *information technology* (IT). This has resulted in an intersection that cuts through the fields which make up our theoretical conceptualisation of *informational space,* (as illustrated in the diagram below).

**Diagram of the multidisciplinary theoretical background**




The preceding discussion suggests that our *problematic* has encountered a new field of investigation which has not yet been well defined academically, although there has been a great deal of theoretical interest in the nature and content of *informational space* in recent years. In our epistemological position, *social change* can be defined as the theoretical concept resulting from the intersection of the three fields mentioned above. On the basis of this theoretical perspective, *social relations* can be regarded as making up the common analytical category that governs our empirical investigation into the social construction of *informational space*, an inquiry which is aimed at building social justice and empowering new forms of citizenship within urban space.

It is difficult to form a comprehensive framework of this kind as the links between each field (socio-cognition, urban planning and urban space) and information technology have not yet been well established. A great deal of interdisciplinary research is underway into socio-cognition and IT, but the focus tends to be on IT development rather than social change. (Mark et all, 1996 and 1997) The interrelationship between the field of urban planning and IT has also been the focus of

several research efforts in recent years centring on spatial analysis and representation. (Batty, 1995, 1996 and 1999) There has been a lot of academic work carried out on urban space and IT, particularly the relationship between cities and IT, but this has tended to lack a comprehensive theoretical approach which is needed to analyse social change within urban space. (Graham and Marvin, 1996 and Kitchin, 1998)

The epistemological choice we made has helped us to forge theoretical links by drawing on the work of other academics that focus on *social change* within each theoretical field. This is why the backbone of our theoretical framework is heavily based on Castells' theory on the *Information Age* (1996, 1997 and 1998). He defines social change as occurring within the actual transitional phase of society (*the network society*), through changes in the concepts of space (*space of flows*) and time (*timeless time*) and under the impact of the information technology revolution. These social changes are shaping a new dominant culture (*the culture of real virtuality*) by means of the dialectic of a new dominant logic (*networking logic*). Yet, *networks of social change* are being shaped, while the dominant networking logic is being met with opposition from the grassroots social movements.

The raw materials for social change and inclusion in this new dominant society are *information* and *knowledge*. Information technology is not just another communication device, but rather a tool to help the process of thinking and developing knowledge. Information and knowledge are the basic concepts that enable us to link this issue to the two other fields by adding two simple questions - what is knowledge and how does it relate to social change within the urban context? How is social change and the construction of knowledge affected by the use of IT?

The first question led us to establish a theoretical link between the *constructivist genetic epistemology* of Piaget's conception of knowledge (1995) and Sandercock (1998), Friedmann's (1998) and Holston's (1999) *radical approach* to the development of a new paradigm for planning cognition and participatory planning practices aimed at social change. In this way, knowledge can be conceived as a dynamic process of social construction brought about through the interaction between subjects (individually or collectively) and environment (concrete - *urban space* or, relational - *virtual space*). This leads us to postulate the idea of a *constructivist social learning*

approach, based on *intellectual cooperation* and *autonomy* for the construction of new planning knowledge aimed at social change, within *informational space.*

The second question lead us to link the three following fields: (a) the concept of *networks of social change,* within *informational space* (Castells, 1996) (b) the new movements of *insurgent citizenship* (Holston, 1999 and Friedmann, 1998) within urban space (c) the *socio-cognitive* conception of *conflict and consensus* (Moscovici, 1994) which is involved in the processes of *collective decision-making* in urban space. (Sandercock, 1998 and Friedmann, 1998) By combining the three approaches, we were able to conceptualise new forms of planning cognition (*grassroots community networks*) and citizen participation in political decision-making (*cyberspatial participatory planning*) within *informational space*. Looked at from this perspective, developing new practices of participation inside *informational space* might hold the key to analysing the conditions required for the social construction of new cultural codes. Moreover, it might allow us to oppose the dominant *networking logic* and close the social gap between the different cultural forms within the *network society.*

This analysis of the *spatial practices* of *informational space* centres on an empirical investigation of social changes in the context of urban governance and new forms of citizenship aimed at social inclusion. Our goal is to find out whether or not IT and the development of *informational space* might empower city-wide grassroots *insurgent citizenship* movements. Since the development of *informational space* in the peripheral nodes of the global network of cities is still in its early stages, our empirical setting has been defined by selecting urban governance experiences where both phenomena could be observable. Porto Alegre has been chosen because it is a node in the peripheral network of Brazilian cities where it is possible to observe the convergence of a movement of *insurgent citizenship* with the rise of informational *space* in the context of urban governance.

Our basic working hypothesis is that the social construction of *informational space* in the peripheral nodes of the global network of cities might challenge the dominance of the global networking logic and help empower local movements of *insurgent citizenship,* because they allow new social knowledge to be constructed. This in turn might enhance power relations in a way that favours the grassroots movements.

However, a number of basic infrastructure conditions have first to be met (open and free access to IT) and local governments must play an essential role in this process.

Our view is that the analysis of the rise of institutional *informational space* in the case of Porto Alegre makes it possible to explore the new forms of social relations in the real world, as well as their translation within the new digital environment. The dominance of the non-material (or relational) dimension of the new space may be better understood by analysing the particular interrelationship between *real* and *virtual* worlds, as set out in Batty's conceptualisation of a *virtual geography* (1997). This methodological perspective has led us to design a mode of interrogation based on a qualitative approach that allows analytical generalisations to be made from the case-study of social relations on a city scale.

This work is divided into three parts. Chapters 1, 2 and 3 define the broad multidisciplinary theoretical arena within which the problematic of cities and its interrelationship with the information process is outlined. The second part deals with the context of the information network of Brazilian cities and in Chapter 4, the broad empirical arena is defined. The final part, Chapters 5, 6 and 7, consists of a case-study investigation. Chapter 5 attempts to design the research methodology, while Chapters 6 and 7 provide an analysis of the findings from the fieldwork research carried out in Porto Alegre (October 1998 - January 1999).

In Part One, the theoretical framework encompasses the interrelationship between the three fields of knowledge and IT. Chapter 1 aims to discuss social theories that can explain the rise of *informational space* and how it relates to social changes in urban space. The focus of our epistemological position is on the *network society* theory (Castells, 1996) and seeks to define the three conceptual categories - *networking logic*, *real virtuality* and *networks of social change* - that govern our empirical investigation. The concept of *real virtuality* is added to the *virtual geography* (Batty, 1997) typology of spaces to forge the links between the different layers of place and spaces that make up *informational space.*

Chapter 2 concentrates on the link between urban planning and IT, with a particular emphasis on participatory practices and a paradigmatic shift in planning practices

(*radical praxis*). In our view, IT might play a significant role in supporting the ongoing paradigmatic changes - from a dominant *instrumental rationality* to a *communicative rationality* (Sandercock, 1998 and Friedmann, 1998) - which are occurring in the urban planning process. We agree that *grassroots insurgent practices* (Holston, 1999) might be empowered by the social construction of the emergent *informational space* on a city scale.

Chapter 3 adds a socio-cognitive dimension to this multidisciplinary framework. It focuses on *social learning practices* in participatory planning within informational space by examining the links with two socio-cognitive concepts - *intellectual cooperation* (Piaget, 1995) and *social representation* (Moscovici, 1994). The basic theoretical argument is that IT might entail a paradigmatic change in social relations that can allow the development of socio-cognitive structures to empower participatory practices within *informational space.* This perspective leads us to put forward a *socio-cognitive constructivist* approach when analysing social learning in participatory planning practices.

Chapter 4 defines the broad empirical setting in the light of the theoretical propositions by analysing the rise of the information process within the network of Brazilian cities. Our intention is to understand the ways Brazilian cities are being changed by the global impact of the information process and how local governments are dealing with these changes. This involves analysing how the Brazilian economy has been restructured to take account of the global impact of the information process and at the same time, its social and political impact on cities, and particularly the case of Porto Alegre. Our study also provides an analysis of the local practices of *direct democracy* which have been put into effect by the *Popular Administration* since the early 90s. The purpose of this is to investigate the role local government and planning practices play in the process of social exclusion and urban segregation (Abers, 1998).

Chapter 5 outlines the methodological strategy of investigation, and the way this maintains the theoretical links and offers feedback to the interdisciplinary framework and the empirical investigation. The chapter starts with a discussion of qualitative methodology by focusing on the case study approach. This is followed by the research questions and the main hypotheses that govern the data collection process. Then there

is a description of the research design, which gives detail of how an interdisciplinary approach was adopted in the data collection. The last section of the chapter provides an account of the selection of the case study subjects, i.e. the social actors of the planning process that are the core of the study, together with an account of the methodological adjustments to the fieldwork.

Chapter 6 begins with an examination of the data and provides an account of the findings of the first part and an analysis of the contextual dimensions (*urban governance* and *informational space*). This involves looking at the evidence gathered from nine *key informants* taken from the municipal government and social organisations. The characteristics of institutional *informational space* are also analysed. Changes in power relations are explored and the potential of this new environment in Porto Alegre.

Chapter 7 discusses the findings about the particular aspects of informational social learning by analysing the evidence gathered in the experimental interview with a group of twenty one selected subjects from municipal government organisations and grassroots community organisations. An attempt is made to understand the potential of the social construction of *informational space* for inter-individual socio-cognitive interactions (*intellectual cooperation* and *social representation*) that might empower *radical* planning practices. This chapter ends with a summary and a discussion of the findings.

We conclude with a critical appraisal and recommendations for future studies.

*"human knowledge is essentially collective, and social life constitutes an essential factor in the creation and growth of knowledge"*

*Jean Piaget (1995:p.30)*

# Part I – Cities and the Information Process

# Chapter 1

## Social Space Theories: from Urban Space to Informational Space

### 1.1 Introduction

The framework of this thesis includes an analysis of three fields of knowledge and their interrelations with information technology: urban space, urban planning and socio-cognition. These make up the theoretical domain of the first part of the thesis. Chapter 1 analyses the first field – *urban space* and its interrelationship with *informational space* and seeks to sketch out the broad theoretical background from the perspective of the social sciences. It also examines the relationship between urban space and informational space from the viewpoint of social space theories.

This chapter focuses on finding social theories which explain the interrelation between the ongoing changes at a global level, and the ways in which urban life and cities are changing locally as a result of these transformations. The main concern of this theoretical frame is with social relations within this new urban society, as seen from the viewpoint of urban space. Our analysis centres on the ways urban sociological theories and urban geography can explain social spatial change and the bearing these theories have on the information technology revolution.

The gist of our theoretical argument is that informational space is a global phenomenon resulting from the transition of society into the *informational mode of production* (Castells, 1996). This is a contradictory global process and is expressed in different ways depending on the social context, although some general trends remain unchanged. In concentrating on social changes, our intention is to consider them on a global and local level too. This chapter analyses these global trends as they have been observed and generalised by social scientists.

The next sections of this chapter are organised around four main theoretical questions that seek to address these global trends:

- What is informational space and how does it interrelate to urban space?

- What are the relationships between social changes and informational environments?
- Who are the main agents for social change in the context of informational environments?
- How is information technology shaping urban socicty?

The three first questions concern the *problematic* of *informational space* (to use Lefebvre's expression) and the first will be addressed in the next section.

## 1.2 Informational Space, Urban Space and the City

This thesis posits two theoretical lines of approach to the current debate on cities. The first looks at social theories linked to the *problematic* of space and deals mainly with the conceptual debate about *space*, *time*, *place* and *nature* to give an overall view of changes in capitalist society today. These theories attempt to find out the causes of social changes, and trace them back to their socio-economic, political and cultural roots (Soja, 1996; Harvey, 1996 and Castells, 1996).

From this conceptual perspective, two extreme positions can be identified. At one end are the propositions that support the idea of a transitional phase in which modern capitalism is moving towards an *informational economy* (Castells, 1996). This is the field that makes an effort to develop and explore the entwining of the cultural, social, political and economic implications of information technology (Kitchin, 1998). At the other extreme are propositions that advocate an evolutionary view of capitalist development as a means of handling complexity.

The range of different propositions between these two extremes also reflects different views on how to incorporate the question of technology within this debate. Information technology has a central position for those who believe we are witnessing a transitional phase towards an informational economy. This transitional phase is broadly envisaged as a social, economic and cultural paradigmatic shift – *the information technology paradigm* (Castells, 1996: p.60-65). In sharp contrast, there are propositions that portray the issue in terms of a *new urban technoculture* (Robins, 1999: p.35) as opposed to being an issue of urban change. Theorists who support the

second view argue that the informational paradigm constitutes an escapist theoretical approach and is a myth that ignores the discussion about the real problems of everyday life in contemporary cities, within the context of a global capitalist economy.

The second theoretical line considers and analyses the field of *spatial practice* and the way it is linked to the conceptualisation of informational space. This is bound up with the field of information technology, its relation to urban space and its application in the everyday life of cities. As these are very recent phenomena, an academic picture has only just begun to emerge, resulting from empirical observations being carried out at a local level. Most theories had already been published before computer-based communication technology systems were fully in place (Castells, 1996: p.328).

As a result of this, a wide array of different meanings and concepts has been applied to describe and analyse the relationship between cities and informational space, within different theoretical approaches. A number of expressions are used to describe the same phenomena – *Informational City, City of Bites* and *Cyber-City*, and this can be clearly observed in some of the most representative authors within this field.

Castells (1989) used the expression *Informational City* to describe his first observations of the phenomena back in the late 80s. This corresponds to one of Castells first academic reflections on social transformations in the context of information technology, at the time when economic globalization started to become apparent as an urban phenomenon. His conceptualisation of the informational city is further developed in his recent trilogy, where he conceptualises the *space of flows* (Castells, 1996: p.376-428).

Mitchell (1995) discusses the phenomena in his *City of Bits,* from the perspective of a new architecture and urbanism. He suggests there is a need to *'reimagine a new architecture and urbanism'* by observing the nature of this new context – *'the ongoing miniaturization of electronics, the commodification of bits, and the growing domination of software over materialized form. They adumbrate the emergent but still invisible cities of the twenty-first century'* (Mitchell, 1995: p.5).

Boyer (1996) in her book on *CyberCities* investigates the way the city has been transformed by the new dematerializaling technologies of the virtual, which are a part of the history of the immaterial structures which shape cities. She gives an account of her search for *'the meaning of Cyber-cities affected by the logic of computers and cyberspace'* (Boyer, 1996: p.14).

The common issue which is observed within this range of approaches, is how to understand the link between information technology and the city. They all attempt to answer the same question – *how are these new technologies shaping everyday life in the post-industrial city within the context of global capitalism development?* What seems to be their main point of disagreement, apart from their different epistemological positions regarding capitalist development, is their individual ways of understanding this new communication technology.

Kitchin (1998) adopts a technological perspective and addresses the question of defining *cyberspace* in academic terms, while acknowledging the difficulties of this task. He states that *'cyberspace is an elusive word to define'* but agrees that *'it is probably one of the most universally over-hyped terms of the latter part of the twentieth century'*. After being spread about by the mass media and academic community *'the word has now been subsumed into every day life'*. From this perspective, *the discussion centres upon the development and appropriation of the Internet (the global network of connected computers), its close cousin, intranets (closed, private corporate telematic networks) and virtual reality (immersion) technologies'* (Kitchin, 1998: p. ix).

Basing his ideas on current theories for understanding the relationship between society and technology, Kitchin argues that there is a need to develop *'a new integrated approach'*, which *'acknowledges the inseparability of the social, cultural, political and economic'*. He thinks that current theories *(determinism, utopianism, political economy and social constructivism)* are often seen as *'too constricting'* and *'too simplistic'* (Kitchin, 1998: p. XI).

Kitchin argues that cyberspace technologies are generally seen by social and economic analysts as being transformative technologies. Within this social and economic

analysis, there are three factors which stand out as explanations of why cyberspace is instigating these changes: *'cyberspace is altering the space-time continuum; cyberspace is changing the basis of communication; and cyberspace is blurring the boundaries between "real" and the "virtual"* (Kitchin, 1998: p. X)'.

Graham and Marvin (1996) distinguish four main theoretical perspectives within the current theories that seek to establish a link between society and technology - *utopianism-futurism*, *technological determinism*, *social and political constructivism* and *political economy*. Kitchin thinks these four perspectives represent *'traditional modernist approaches to the relationship between technology and society'*. He suggests adding two more critical approaches in order to incorporate *'postmodernist/postsructuralist'* and *'feminist'* perspectives (Kitchin, 1998: p.56-72).

We believe that the characterisations of the different theoretical positions must go beyond ideological constraints if they are to be of any help in building an integrated approach. Furthermore, this integrated theoretical approach should be empirically grounded if these ideological constraints are to be overcome. In view of this, it would be of value to provide a brief review on the main ideas that account for each perspective and their limitations in explaining the complexity of the relationship between cyberspace and urban phenomena.

Graham and Martin claim that the perspectives of *utopianism and futurism* tend to view these new technologies, or rather *cyberspatial technologies* (to use Kitchin's expression), as a positive and *massive* change leading to some form of *information society*. These prospects *'generally tend to take a relatively optimistic view of the future impacts of telecommunications on cities and urban life'*. In this context, *'where there are negative effects'*, they too *'can often be solved through new technologies'* (Graham and Marvin, 1996: p.85). In addition Kitchin argues that within this perspective *'the basic tenet is that we will use technology to progress and that potentialities will be realised simple because they are possible'*. He states that, contrary to what is claimed by these futuristic visions, *'there is little to suggest that access to cyberspace in the future will become more democratic or that a radical alteration and coming together of social divisions will occur'* (Kitchin, 1998: p.57).

In the mainstream of social research (described as *technological determinism,* by Graham and Marvin), the main characteristic is a direct relationship between new telecommunication technologies and urban change. Thus, *'new telecommunications are seen directly to cause urban change'* (Graham and Marvin, 1996: p. 80). In this view, *'the analytical and policy issues centre around how society can adapt to and learn to live with the effects of telecommunications-based change'*, instead of *'focusing on the ways in which these effects may be altered or reshaped through policy initiatives'* (Graham and Marvin, 1996: p. 83). Kitchin generally agrees with Graham and Marvin's criticism of the fairly linear, simple cause-and-effect relationships between cyberspace and changes in the everyday life of people, that are a feature of this approach. He adds that this is a restricted cause-and-effect view in which *'cyberspace will lead to the formation of new communities'*, without taking into account that *'on-line communities are the product of like-minded people finding a common "place" to interact'* (Kitchin, 1998: p.57-58).

Graham and Marvin select the *urban political economy* as the third of the analytical approaches to explain the relationship between city and information technology. In this approach, *'city-telecommunications relations cannot be understood without considering the broader political, economic, social and cultural relations of advanced industrial society and how they are changing'* (Graham and Marvin, 1996: p. 94). They argue that this approach embodies two views. One view foresees the appearance, in the near future, of dystopian scenarios for cities with modern societies that are fragmented and globalised.[1] The other view is more analytical and has developed *'as a result of criticism of the failings of technological determinism and utopianism/futurism'*. Much of the work on this stems from recent analytical neo-Marxist perspectives. In this approach *'city-telecommunications relations are seen to be driven by the economic forces of capitalism itself and to reflect and perpetuate capitalism's highly unequal social relations'* (Graham and Marvin, 1996: p. 95).

Kitchin believes the arguments against *technological determinism* form the basis of the *social constructivism* approach. He states that for constructivists *'technology is a social construct'* and that *'technology and society cannot be separated but are*

[1] Famous portrayed examples are Ridley Scott's Los Angles in *Blade Runner* and William Gibson's *Neuromancer*. (Graham and Marvin, 1996: p. 94)

*intimately entwined with each other and with nature'* (Kitchin, 1998: p.58). Thus, *'cyberspace as a social construction is mediate and understood through culture as a social process'*. As a consequence, this approach rejects the social determinist ideas that *'structures of capitalism and the power of political-economic forces dominate how cyberspace has and will develop'* (Kitchin, 1998: p.59).

Kitchin states that Graham and Marvin *'construct a theory that combines social constructivism with political economy as a way to explore the recursive relationship between urban places and telecommunications'* (Kitchin, 1998: p.61). In his own search for an integrated approach, Kitchin sets out to build on their approach by adding two more theories – the *postmodernism and poststructuralism*, and a *feminist critique*. In reviewing the limitations of these different approaches, he seeks a new approach to cyberspace from an integrated perspective.

Kitchin argues that separately *'each of these approaches seems limited and limiting'*. Utopianism/futurism give *'little regard to wider social or economic considerations concerning how technologies are re-appropriated and used by society or how technologies fit into the economic landscape'* (Kitchin, 1998: p.69), while technological determinism suggests that *'we might adapt to cyberspace'*. Within these two viewpoints, the society and technology relationship is neither complex nor intimately intertwined. *Social constructivism* and *political economy* are diametrically opposed to this and claim that *'society and technology are inseparable'*. However, these approaches understand this relationship in different ways. Social constructivists think the central point is *'the micro-level of social processes used in shaping and re-appropriating the interactions between different actors and institutions that socially construct cyberspatial development and use'*, rejecting the power of political-economic forces. In contrast, the political economy approach focuses on broader social and economic structures, and fails to acknowledge *'the role of social processes in determining how a technology is developed and appropriated'* (Kitchin, 1998: p.70).

Kitchin follows the same theoretical path as Graham and Marvin when he attempts to develop a new integrated approach to bring together the complementary viewpoints. Graham and Marvin combine *'social constructivism and political economy'* to explain the geography of telecommunications. Kitchin, in his turn, is more interested in *'how*

*cyberspace reconfigures and transforms society into a new, post modern world'* (Kitchin, 1998: p.72). In this way, he *'seeks to deconstruct the complex ways in which the local and global, socio-cultural and politico-economic intersect and are play out, a framework in which the fragmentation, decentring and re-structuring of society can be read and interpreted'* (Kitchin, 1998: p.71).

This brief review shows that when exploring the relationship between information technology, urban space and society, account must be taken of integrated perspectives that encompass social, political, cultural and economic aspects of the question. Thus we agree with Kitchen's view that any theoretical approach which attempts to investigate *cyberspace* should consider the *'recursive relationship between local, social/cultural and regional/global, political/economic processes'* (Kitchin, 1998: p.71).

Our main concern is to analyse social changes within this new informational space in a particular social context and make an effort to give a detailed account of changes within peripheral cities of the global network. Informational space is conceived as a social construction, a process of continuous transformation. This explains why we build on Castells' (1996) comprehensive theoretical conceptualisation of the *network society* to design our own integrated approach.

### 1.3 Social Change and the Network Society

The network society is an extensive theoretical construction which can allow us to understand the current transformative trend that society as a whole is undergoing – the transition from a process of urbanisation to a process of informationalization. The analysis of this new global social phenomenon raises a number of important questions, which need to be addressed to have a better understanding of the particular conditions of the information process:

- What is the nature of this new social structure?
- How is it related to social change?
- Who are the main social actors in this social change?

### 1.3.1 Network Society concept

Castells' main argument is that there is a new emerging, dominant social structure, which is characteristic of informational capitalism and widespread throughout the world, which he calls the *network society* (Castells, 1996: p.469-478). This concept is outlined in the first volume of his trilogy (Castells, 1996) and developed in the second volume (Castells, 1997), where he makes a connection with social movements and political processes all over the world. In the third volume (Castells, 1998), he looks in detail at the interaction between the power of networks and the power of identity in relation to macro-social and cultural processes throughout the world (Castells, 1997a: p.6-7).

Networks can be generically defined as *'sets of interconnected nodes'*, while *'a node is the point at which a curve intersects itself'*. To be specific, this concept of a node depends on *'the kind of concrete networks of which we speak'* (Castells, 1996: p.470). A central idea in his conceptualisation of the new dominant social structure in the information age is the concept of *networking logic.* Castells delineates two main analytical categories to help analyse the networking logic in concrete networks – topology and morphology of network structures.

#### Network morphology

The definition of network morphology highlights the relation between networking logic and power relationships. Networks are *'open structures'* and their morphology implies *'a source of dramatic reorganisation of power relationships'*. This morphological characteristic enables these structures to *'expand without limits, integrating new nodes, as long as they are able to communicate'*. In order to do this, they must be able to *'share the same communication codes'* (Castells, 1996: p.471).

Information technology plays a fundamental role within this process inasmuch as it is *'the convergence of social evolution and information technologies that has created a new material basis for the performance of activities throughout the social structure'* (Castells, 1996: p.470-471). Hence, it is actually the networking logic within this new material basis that explains why this logic is now dominant in the social process. It

lays the foundations of a dialectical relationship between social structure and the process of reproducing the networking logic which is shaping social structure itself.

Castells' conceptualisation of network morphology is tied up with the definition of a transitional period in capitalist society. Although the transition from the industrial to the *informational mode of production* within capitalist society, cannot be considered here, this question is raised to clarify the relationship between network morphology and his definition of a new mode of capitalist development, termed *informationalism* (Castells, 1996: p.195-200).

Castells carries out an analysis of the empirical world to illustrate that the new economy of the information age is based on *'global networks of capital, management, and information, whose access to technological know-how is at the roots of productivity and competitiveness'*. He makes clear that this *'evolution towards networking forms of management and production does not imply the demise of capitalism'*. On the contrary: *'the network society, in its various institutional expression, is, for the time being, a capitalist society'*. He also stresses the differences, arguing that in the information age, *'this brand of capitalism is profoundly different from its historical predecessors'*. The reasons for this lie in two factors – *'it is global and it is structured to a large extent, around a network of financial flow'* (Castells, 1996: p.471).

This is one of the most controversial areas of Castells' general theory of the Information Age and is related to his conceptualisation of a new capitalism which he calls *'informational capitalism'* (Castells, 1996: p.66-150 and 151-200). This conception is defined in terms of the techno-economic transformation of society and based on the informational technology paradigm.

### Network topology

Defining network topology is essential to understand the relationships between networks and the relational aspects of distance between nodes. This is the main topological attribute which has to be taken into account in the analysis of concrete network structures.

Castells characterises distance within networks and says that:

*"The topology defined by networks determines that the distance (or intensity and frequency of interaction) between two points (or social position) is shorter (or more frequent, or more intense) if both points are nodes in a network than if they did not belong to the same network. On the other hand, within a given network flows have no distance, or the same distance, between nodes. Thus, distance (physical, social, economic, political, cultural) for a given point or position varies between zero (for any node in the same network) and infinite (for any point external to the network). The inclusion/exclusion in networks, and the architecture of relationships between networks, enacted by light-speed operating information technologies, configure dominant processes and functions in our societies."* (Castells, 1996: p. 470)

This approach to distance within networking structures involves some fundamental changes in essential concepts that govern the material basis of human society: *space* and *time*. In the concept of relational distance, the measurement of space and/or time has changed within these structures. Furthermore, the topological notion of inclusion/exclusion, in other words 'pertinence', is also seen in a new dimension within the networking logic. These are the basic qualities of the topological dimension of networks.

### 1.3.2 Space and Time in the Network Society

One of the main propositions raised by Castells at a deeper theoretical level, is that, as in every period of historical change, in the Information Age, *'the foundations of society, space and time are being transformed'* (Castells, 1996: p.476). He claims that these changes are due to the very same networking logic and are being organised around a new form of space, *the space of flows* and a new form of time, *timeless time.*

Castells opposes most of the classical social theories that regard space as being dominated by time. He puts forth the idea that *'space organises time in the network society'*, as both *'space and time are being transformed under the combined effect of information technology paradigm, and of social forms and processes induced by the current process of historical change'* (Castells, 1996: p. 377).

In this way, space and time are seen as being both a theoretical discussion and a cultural construction at the same time. Thus, although space organises time in the

network society, it is organised around a dialectical relationship between these new forms of space and time within the new social structure. This leads Castells to set out the following important hypothesis:

*" (...) Dominant functions are organised in networks pertaining to a space of flows that links them up around the world, while fragmenting subordinate functions, and people, in multiple spaces and places, made of locales increasingly segregated and disconnected from each other. Timeless time appears to be the result of the negation of time, past and future, in the networks of the space of flows. Meanwhile clock time, measured and valued differentially for each process according to its position in the network, continues to characterise subordinate functions and specific locales."* (Castells, 1996: p.476)

This hypothesis claims that the dominant social structure, the network society, is organised around new forms of space and time, where this new spatial process is becoming the dominant spatial manifestation of power and functions, and organises time itself.

**Timeless time**

The interrelationship between space and time is not something which exists by itself, but only in relation to a cultural construction (social construction). Castells' conception of this dialectic relationship between space and time allows him to portray the new characteristics of this interrelationship in terms of an informational paradigm.

However, he stresses the fact that conceptualising time in this context is a difficult task (Castells, 1996: p. 429). In his view, *timeless time* is the dominant temporality of our society and *'occurs when the characteristics of a given context, namely, the informational paradigm and the network society, induce systemic perturbation in the sequential order of phenomena performed in that context'* (Castells, 1996: p. 464). But as it is a dominant temporality, this characterisation does not refer to all times in human experience. He argues that *'in fact, in our world, most people and most spaces, live in a different temporality'* (Castells, op. cit.).

Castells suggests that the relationship between timeless time and this new form of space is as follows:

*" Timeless time belongs to the space of flows, while time discipline, biological time, and socially determined sequencing characterise places around the world, materially structuring and destructuring*

*our segmented societies. Space shapes time in our society, thus reversing a historical trend: flows induce timeless time, places are time-bounded."* (Castells, 1996: p.465)

He also argues that although this logic of timeless time is dominant, it does not meet without resistance in our changing society.

One of his main hypotheses is that this new social structure *'is characterised by the breaking down of rhythmicity, either biological or social, associated with the notion of a lifecycle'*. He stresses the fact that *'although the principle of a sequential life shifted from being bio-social to becoming socio-biological, there was (indeed, there still is) a lifecycle pattern to which advanced societies tend to conform, and toward which developing countries try to evolve'* (Castells, 1996: p.445-446). This hypothesis reveals the transformation of time as it affects the life cycle and the breakdown of rhythmicity, which are basic characteristics of the new emergent society. Accordingly, they are *'decisively undermining this orderly lifecycle without replacing it with an alternative sequence'* (Castells, op. cit.).

Consequently what characterises time in the network society is the ability to break down rhythmicity. This ability is conceptualised as being either a sequence of no time or, the culture of timeless time. It is also a *'culture at the same time of the eternal and of the ephemeral'*. This is because two different attributes characterise this new form of time, *'simultaneity and timelessness'*, which are built around the material conditions of the informational paradigm (Castells, 1996: p. 462- 463).

With regard to the theoretical debate about new forms of time, Castells clearly distinguishes between his conceptualisation of *timeless time* and David Harvey's conception of *time-space compression* (Harvey, 1989). Although Harvey also *'stresses the relentless tendency of capitalism to eliminate barriers of time'* (Castells, 1996: p.462-463) in post-modern society, he lays emphasis on the sphere of capitalist logic. In contrast Castells thinks such a tendency is in *'the whole realm of human activity'* within the emergent network society (Castells, 1997a: p.12).

**Space of flows**

The conceptualisation of both space and time, is a complex aspect of social/spatial theories. Despite the complexity of the concept, the essential theoretical question to be addressed is quite simply – *what is space?* Castells' approach in the perspective of social theory, provides an answer that is associated with the idea of *social practice.*[2]

Castells assumes that in a general sense *'space is a material product, in relationship with other material products – including people – who engage in (historically) determined social relationships that provide space with a form, a function, and a social meaning'*. He says that defining space in terms of social practices requires a clarification of the historical conditions of such practices, in this case the historical conditions of *'the informational society that underline the emergence and consolidation of new spatial forms and processes'* (Castells, 1996: p.411).

His concept of space leads him to suggest that *'space is the material support of time-sharing social practices'*. Moreover, he derives two important ideas from the idea of space as a material support. The first is that *'any material support always bears a symbolic meaning'*. The second is related to the meaning he attributes to the expression – *'time-sharing social practices'*. This expression refers to the fact that *'space brings together those practices that are simultaneous in time'*. Furthermore, he stresses that *'traditionally this notion was assimilated to contiguity'* (Castells, 1996: p. 411).

If one is to understand social practices in the network society, Castells states that there is a need to separate the *'basic concept of material support of simultaneous practices from the notion of contiguity'*, so that we can *'account for the possible existence of material supports of simultaneity that do not rely on physical contiguity'*. This is the case of *'the dominant social practices'* in the networking society (Castells, 1996: p. 411).

Castells makes a connection between this concept of space and the idea that dominant social practices are constructed around flows which are *'the expression of processes dominating our economic, political and symbolic life'* (Castells, 1996: p.412). By

[2] Castells note a convergence with Harvey's ideas (1990) on the interrelation between time/space and social action (Castells, 1996: p.411).

referring to this interrelationship, he is able to define the material support required for social practices in the network society. This definition paves the way for his re-conceptualisation of the *space of flows,* as he makes clear when he says:

*'The space of flows is the material organisation of time-sharing social practices that works through flows'* (Castells, op. cit.).

He attempts to make his concept less abstract by analysing three layers of material support that together constitute the space of flows in the informational society. These layers consist of *'a circuit of electronic impulses'*, made up of *'nodes and hubs'* and *'the spatial organisation of the dominant managerial elites'* respectively (Castells, 1996: p.412-418).

The first layer comprises telecommunications systems based on information technology that encompass the *'material support for simultaneous practices'*. It constitutes a *'spatial form'* in the sense that *'the spatial articulation of dominant functions does take place in our societies in the network of interactions made possible by information technologies devices'*. Castells states that *'in this network, no place exists by itself, since the positions are defined by flows'*. Hence, *'the network of communication is the fundamental spatial configuration'*. This does not imply that places disappear, but just that *'their logic and their meaning become absorbed in the network'* (Castells, 1996: p.412).

Although the second layer is made up of *'nodes and hubs'*, Castells claims that it is not placeless. The space of flow is based on an electronic network, but *' this network links up specific places, with well-defined social, cultural, physical, and functional characteristics'*. Within this network configuration some places are *'exchangers, communication hubs playing a role of co-ordination'*, while others are *'nodes of the network, that is the location of strategically important functions'*. Castells states that *'both nodes and hubs are hierarchically organised according to their relative weight in the network'*. This hierarchy *'may change depending upon the evolution of activities processed through the network'* (Castells, 1996: p.413).

The third layer refers to the *'managerial elites'*. They are responsible for the direction of the functions that articulate the space of flows. This conceptualisation of the space

of flows *'starts from the implicit assumption that societies are asymmetrically organised around the dominant interests specific to each social structure'* (Castells, 1996: p.415). Although the space of flow is not the only spatial logic in our society, it is the dominant one. The reason for this is that it encompasses *'the spatial logic of the dominant interests/functions'* (Castells, op. cit.).

He insists that this dominant spatial logic is not *'purely structural'* but rather, is *'enacted, indeed conceived, decided, and implemented by social actors'*. Hence, these social actors are the *'technocratic-financial-managerial elite that occupies the leading positions in our societies'*. Consequently, this third layer, *'the spatial manifestation of the informational elite'*, constitutes another fundamental dimension of the space of flows. The social domination is based on the *'twin mechanisms'* of *'articulation of the elites, segmentation and disorganisation of the masses'* (Castells, 1996: p.415).

Once the question of the domination process of the elites has been settled, another theoretical question arises – *what exactly does characterise the spatial manifestation of these informational elites?* Castells provides a short answer to this question: *'elites are cosmopolitan, people are local'*. This brings the debate to the spatial sphere, with a focus on the interrelation between the concepts of space and place. Accordingly, *'the space of power and wealth is project throughout the world, while people's life and experience is rooted in places, in their culture, in their history'*. As a consequence, the more *'a social organisation is based upon ahistorical flows, superseding the logic of any specific place, the more the logic of global power escapes the socio-political control of historically specific local/national societies'* (Castells, 1996: p.415-416).

Castells envisages that these elites as having a characteristic behaviour that allows them *'to become clearly distinct from the populace'* to avoid *'the excessive penetration of political representatives into their inner world of strategic decision-making'* in modern democratic institutions. There is also a fundamental role for cultural codes that *'are embedded in the social structure in such a way that possession of these codes opens the access to the power structure without the elite needing to conspire to bar access to its networks'* (Castells, 1996: p.416).

Castells' view of the spatial characteristics manifested by the elites, is that the logic of domination takes two major forms in the space of flows. The first regards the elites as an *'interpersonal network subculture, spatially bound'*. This means the space of flows is *'made up of personal micro-networks that project their interests in functional macro-networks throughout the global set of interactions in the space of flows'* (Castells, 1996: p.416).

The second primary form of the cultural distinctiveness of the elites in the informational society lies in their lifestyle which is *'created to design spatial forms aimed at unifying the symbolic environment of the elite around the world, thus superseding the symbolic specificity of each locale'* (Castells, 1996: p.417).

Yet, on the question of the dominance of the *space of flows* over the *space of places* Castells suggests that this new space, like the new form of time *(timeless time)*, *'does not permeate down to the whole realm of human experience in the network society'*. On the contrary, *'the overwhelming majority of people, in advanced and traditional societies alike, live in places, and so they perceived their space as place-based'* (Castells, 1996: p.423). However, this interrelationship, *'between the space of flows and the space of places, between simultaneous globalization and localisation are not predetermined in their outcome'* (Castells, 1996: p.425).

There are other contradictory social interrelations taking place, *'beyond the opposition between the space of flows and the space of places'*, and while are *'forces of resistance to the domination'*. At the same time that *'information/communication networks diffuse in our societies and as technology is appropriated by a variety of social actors'*, we are witnessing *'an increasing penetration and subversion of the space of flow by the power of experience'*. This subversion is inducing *'a set of contradictory power relationships'* (Castells, 1997a: 14-13).

Traditionally, place is defined as *'a locale whose form, function and meaning are self-contained within the boundaries of physical contiguity'* (Castells, 1996: p.423). As a result, contiguity can be established as a fundamental attribute in distinguishing these two forms of space. Yet, when considering the traditional concept of place, it is important to be aware that *'not all places are socially interactive and spatially rich'*; in

the same way that *'places are not necessarily communities, although they may contribute to community-building'* (Castells, 1996: p.425). This is because it is the different physical/symbolic qualities themselves that make them places.

On the question of the dialectical relationship between the space of flows and the space of places, insofar as they change urban life, Castells says:

*'It follows a structural schizophrenia between two spatial logics that threatens to break down communication channels in society. The dominant tendency is toward a horizon of networked, ahistorical space of flows, aiming at imposing its logic over scattered, segmented places, increasingly unrelated to each other, less and less able to share cultural codes. Unless* ***cultural and physical bridges*** *are deliberately built between these two forms of space, we may be heading toward life in parallel universe whose times cannot meet because they are warped into different dimensions of a social hyperspace'* (Castells, 1996: p. 428).

Two questions arise from this dialectical relationship between the two spaces before one can analyse the new cultural forms in the network society: *what is the nature of this new culture?* and, *what are the main characteristics that might allow society to build cultural and physical bridges between these two forms of space?*

### 1.3.3 Toward the Culture of Real Virtuality

Our general theoretical approach of the cultural dimension of the network society sets out from an assumption that culture consists of *'historically produced systems of beliefs and codes, made up of communication processes'* (Castells, 1996: p.328; p.372). Moreover, culture is constructed in each society through a combination of three interactive categories: technology, space and time. Analysing the transformation of each category reveals how these three transformations together produce this new culture.

Castells envisages the emergence of *'a similar pattern of networking, flexibility, and ephemeral symbolic communication, in a culture organised around electronic media, including in this communication system the computer-mediate networks'*. He emphasises that *'all kinds of cultural expression are increasingly enclosed in or shaped by this world of electronic media'*. The distinctive pattern of this new media system is that it *'is not any longer characterised by one-way, undifferentiated*

*messages through a limited number of channels that constituted the world of mass media'* (Castells, 1997a: p.10).

In the analysis of the cultural realm, the theoretical questions that need to be addressed are – *what are the main characteristics of this new media system?* And, *how is it changing urban culture in our society?*

**A new media system**

The widespread development of the World Wide Web and the accelerated process of information technological innovation in the last few years confirm Castells' forecast of a changing pattern in the dominant culture in western societies. The main challenge facing the researcher who wishes to analyse the embryonic development of this new electronic system, within the perspective of the social sciences, has been – *how to access its potential social impact without falling into futurology.*

Castells analyses the historical *'tendencies on the basis of the observation of trends that have prepared the formation of the new system over the last two decades'* (Castells, 1996: p.329). On the strength of his analysis of these trends, he identifies two components of the new communication system: *'the mass media of communication structured around television'* and, *'the emergence of Internet and the spontaneous development of new kinds of virtual communities'* (Castells, op. cit.).

The first component of the new communication system is analysed by identifying the tendencies which could be discerned in the development of the *mass media* (Castells, 1996: p.331). The second component has taken the form of *computer-mediate systems* (CMC) in which the *Internet* is the backbone, since it gradually linked up with most networks during the 1990s. When both components were combined, it led to the setting up of a new electronic communications system that Castells labels *'multimedia'*.

Castells' analysis of the first component of the new communication system is heavily based on McLuhan's (1989) theories on mass media culture and goes far beyond the limits of this thesis. The social impacts of mass media development are only analysed

here to the extent that they are related to computer-mediate communication networks. What is of particular significance with regard to the development of the *mass media* when it was structured around television, were the transformations that occurred during the 1980s. These were marked by *'decentralisation'* and *'diversification'*, and comprised a *'new media'* which paved the way for the formation of *'a multimedia system'* in the 1990s (Castells, 1996: p. 329).

Castells stresses that the key issue regarding this change in the mass media is that *'while mass media are a one-way communication system, the actual processes of communication are not'*. They *'depend on the interaction between the sender and the receiver in the interpretation of the message'*. It is in fact this interrelationship between the sender and the receiver and the fact that the *'audience is not a passive object, but an interactive subject'* that has made these transformations possible. He states that these characteristics have '*opened the way to its differentiation, and subsequent transformation of the media from mass communication to segmentation, customisation and individualisation, from the moment technology, corporations and institutions allowed such moves'* (Castells, 1996: p. 335-337).

At the same time, he insists that *'while the media have become globally interconnected, and program and messages are circulating in the global networks, we are not living in a global village, but in customised cottages globally produced and locally distributed'*. This trend had a profound effect on the logic of the flow of messages in that *'the diversification of the media, because of the conditions of their corporate and institutional control, did not transform the unidirectional logic of their message'* (Castells, 1996: p. 341-342).

The second component of the new communication system, the computer-mediate communication process, is analysed in a historical way. Castells describes the origins of the systems as large-scale experiments which were encouraged by the State, but conceived and developed in the academic world. Its development has, in fact, been shaped by these origins. He claims that, although the spreading of the medium on a global scale has now slowed down, its *'most heroic tones and its countercultural ideology'*, the grass-roots of electronic culture, its original *'free use, technological features and social codes'* have had an impact on its use (Castells, 1996: p. 355).

Since the early 1990s when some of the major operations of the network were first privatised, the commercialisation of the Internet has grown at a rapid rate; however, '*commercial and government interests coincide in favouring the expanding use of the network*' (Castells, 1996: p. 355). The commercial logic of the network follows the same market principles, *'the greater the diversity of messages and participants, the higher the critical mass in the network, and the higher the value'* (Castells, op. cit.).

Castells thinks that the main characteristics of computer-mediate communication networks, both inside and outside of the Internet are their *'pervasiveness'*, their *'multifaceted decentralisation'*, and their *'flexibility'*, in spite of all efforts to regulate, privatise and commercialise the Internet and its tributary systems. Thus, he suggests that *'the architecture of network is; and will remain, technologically open, enabling widespread public access and seriously limiting governmental or commercial restrictions to such access, although social inequality will powerfully manifest itself in the electronic domain'* (Castells, 1996: p. 356-358).

Castells' analysis of the two components of the new communication systems results in a conceptualisation of this new system as a symbolic environment. He uses the word *multimedia* to label the new electronic communication system that *'started to be formed out of the merger of globalised, customised mass media and computer-mediated communication, in the second half of the 1990s'*. This system is characterised by *'the integration of different media'* and its *'interactive potential'* (Castells, 1996: p. 364), but unlike the Internet, the first stages of development of the multimedia systems have been business controlled. Castells argues that *'this will have lasting consequences on the characteristics of the new electronic culture'*. This does not mean that governments all over the world were not interested from the very beginning, but the *'scale of investments in infrastructure prevents any government from acting by itself'* (Castells, 1996: p. 365-366).

He describes a *'frantic race'* that took place in the mid-1990s, between *'governments and companies around the world'*. They were jockeying for positions in *'setting up the new systems, considered to be a tool of power, potential source of huge profits, and symbol of hypermodernity'* (Castells, 1996: p. 364-366).

Apart from the scale of investment in infrastructure and some major unsolved technological problems, he holds out a warning that although still in its early stages, *'the process of formation of the new system is likely to be slower, and more contradictory than anticipated'* (Castells, 1996: p. 364). He also notes that *'although there is scant evidence on the matter, some indicators point to a more complex demand pattern'* (Castells, 1996: p. 368-369).

Castells recognises the difficulty of expressing the implications of such changes in cultural terms, as this is indeed a very recent process. Nevertheless, he argues that some major social/cultural patterns are already appearing even in these early stages of this process. His observations show these patterns are common in Europe as well as America and Asia (Castells, 1996: p.369) and he outlines four patterns of development:

- *'widespread social and cultural differentiation*
- *increasingly social stratification among users*
- *integration of all messages in a common cognitive pattern*
- *ability to capture most cultural expressions, within their domain in all their diversity'* (Castells, 1996: p.370-372).

Castells admits that there is an increasingly spontaneous formation of virtual communities within the Internet, as well as a use of computer-mediated communication both in politics and for electronic citizen participation. However, he describes these phenomena as being initially North American based experiences but subsequently as having a tendency to reach out to the whole world. At the same time, he considers that it is *'still unclear how much sociability is taking place in such electronic networks, and what are the cultural effects of such a new form of sociability'*. Yet, he maintains that *'networks are ephemeral from the point of view of their participants'* (Castells, 1996: p.362) and this is a common feature.

On the question of inequality in the electronic realm, he makes a connection with the origins of the process that *'starts as the medium of communication for the most educated and affluent segment of the population of the most educated and affluent countries* (Castells, 1996: p.360).' His hypothesis is that:

*'in the near future use of CMC will expand, particularly via educational system, and will reach substantial proportions in the industrialised world: it will not be exclusively an elite phenomenon, although it will be much less pervasive than the mass media'* (Castells, op. cit.).

Castells reminds us that computer-mediated communication was a recent experience at the time he was writing. This posed a major challenge in gauging its social and cultural impacts any further than *'some tentative lines of interpretation of the relationship between communication and society'* (Castells, 1996: p.358).

## Real Virtuality

The observations on the development of these new technologies encompassing the formation of a new communication medium lead to the conceptualisation of *real virtuality.*[3] Castells suggests reversing the common expression *virtual reality*[4] to outline his conception of this new technological medium as belonging to our real world, as opposed to the realm of the digital world alone. His starting-point implies that *'all forms of communication are based on the production and consumption of signs*[5] *which means, there is no separation between "reality" and symbolic representation'*. Pursuing this idea, he states that *'reality, as experienced, has always been virtual because it is always perceived through symbols'* (Castells, 1996: p.372).

Castells' conceptualisation of *real virtuality* raises a question:

*'What is then a communication system that, in contrast to earlier historical experience, generates real virtuality? It is a system in which reality itself (that is, people's material/symbolic existence) is entirely captured, fully immersed in a virtual image setting, in the world of make-believe, in which appearances are not just on the screen through which experience is communicate but they become the experience'.* (Castells, 1996, p.373)

The main characteristics of this new system of communication are its *'inclusiveness and comprehensiveness of all forms of cultural expressions'*. In this new type of society *'only presence in this new integrated system permits communicability and*

[3] He established an analogy with Jorge Luis Borges' image of the *'Aleph'*. Interestingly this is the same metaphor employed by Soja (1996:p.54-60) in his post-modern conceptualization of *thirdspace*. Soja's metaphor is used to help in defining precisely why sequential narrative cannot define *space*, as proposed by Lefebvre (1999). Castells' analogy allows *Aleph's notion of space* to materialise through de-sequential space within the new communication system.

[4] It suggests the reproduction of reality within the so-called digital world.

[5] Castells refers to the classic works of Barthes (1978) and Baudrillard (1972).

*socialisation of the message'* (Castells, 1996: p.374). In contrast to this, one may suppose it does not mean the *'homogenisation of cultural expressions and full dominance of codes by a few central senders'*. This is because of the *'diversification, multimodality, and versatility of the new communication system'*, that is able to *'integrate all forms of expressions, as well as the diversity of interests, values, and imaginations, including expression of social conflicts'*. Castells claims that *'the price to pay for inclusion in the system is to adapt to its logic, to its language, to its point of entry'* (Castells, op. cit.). In this way, the fundamental point that constrains the process of liberation in the informational society is related to the question – *'who are the interacting and who are the interacted?'* (Castells, op. cit.)

Castells' analysis allows us to say that the relationship between cultural and technological change in the network society are explored by means of three characteristics. The first is the construction of new communication systems based on the *electronic hypertext* or *digital hypertext* (Castells, 1996: p 328). Information technology allows the production of hypertexts to be produced for millions of people simultaneously. But, at the same time, the texts can be customised for each one and produced by each one. Consequently it is no longer the production of mass media culture. Implicit in this new cultural process is a dialectical relationship between *globalisation* and *customisation.*

The second characteristic lies in the idea of connecting different communication networks within the same communication system via multimedia environments. The third is the great potential for *interaction* between these communication systems. When combined, these three characteristics display remarkable qualities of *flexibility* and *inclusion* in the production of these new cultural texts. The combinations create new social codes that have moulded the *culture of real virtuality.* This culture is the dominant culture, but not the only one. It brings together the emergence of *new forms of space* and *new forms of time.*

### Social Change

The network society, like any social structure, is not devoid of contradictions, social conflicts, and challenges from alternative forms of social organisation. The same

historical law of resistance against social forms of dominance applies to this new social structure. What is distinct here and, according to Castells requires an analytical effort, is the task of identifying who are the challengers of *'the processes of domination enacted by the immaterial, yet powerful, flows of the network society'* (Castells, 1998: p.351). This is because power within this new social structure also assumes an immaterial dimension.

A basic theoretical question follows on from this – *what is power under these new historical conditions?* Castells argues that in the network society *'power is no longer concentrated in institutions (the state), organisations (capitalist firms), or symbolic controllers (corporate media, churches). It is diffused in global networks of wealth, power, information, and images, which circulate and transmute in a system of variable geometry and dematerialised geography. Yet, it does not disappear'* (Castells, 1997: p.359).

These ideas lead on to another fundamental theoretical question – where is power in this social structure? Castells thinks that *'the new power lies in the codes of information and in the images of representation around which societies organise their institutions, and people build their lives, and decide their behaviour. The sites of this power are people's mind'* (Castells, 1997: p.359).

This is the reason why power in this social structure is, at the same time, *'identifiable and diffused'*, and entails an *'endless battle around the cultural codes of society'*. Furthermore, Castells argues that this is also the reason why *'identities are so important, and ultimately, so in this ever-changing power structure – because they build interest, values, and projects, around experience, and refuse to dissolve by establishing specific connections between nature, history, geography and culture'*. In the same way, *identity* (Castells, 1997: p.6-8) plays a fundamental role in helping to *'anchor power in some areas of the social structure, and build from there their resistance or their offensives in the informational struggle about cultural codes constructing behavior and thus, new institutions'* (Castells, 1997: p.360).

Following on from the question of power, the next theoretical point related to social changes is – who are the subjects of social change under these conditions? In an

attempt to answer this question, Castells points to some major trends. These bear out his observations on social protests against patterns of domination in the network society. He examines two main sources where they are not likely to develop – the *labour movement* and *political parties.* At the same time, Castells identifies *'social movements emerging from communal resistance to globalization, capitalist restructuring, organisational networking, uncontrolled informationalism, and patriarchalism'* (Castells, 1997: p.360-361), as the potential subjects of the Information Age.

Regarding the forms in which these movements are expressed, Castells states that his analysis is only speculative as these movements are very recent phenomena. Nevertheless, he identifies, as a general trend, agencies which are voicing *'identity projects'*. They aim at *'changing cultural codes'*, in the sense that they are *'symbols mobilizers'* (Castells, 1997: p.361-362).

Castells argues he has identified two sorts of potential agencies. First there is what he calls *'the Prophets*, they are *'symbolic personalities whose role is not that of charismatic leaders, but to give a face to a symbolic insurgency, so that they speak in behalf of the insurgent'* (Castells, 1997: p.361). Of greater significance is what he calls *'new social movements.'* These are characterised as a *'networking, decentred form of organisation and intervention'* that at the same time mirror and counteract *'the networking logic of domination in the information society'*. These networks are *'the actual producers, and distributors, of cultural codes, not only in the Net, but in their multiple forms of exchange and interaction'*. (Castells, 1997: p.362) At the same time, they are difficult to locate and identify because of their decentred, subtle character of *'networks of social change'*. Castells thinks these *'grassrooted networks of communal resistance'*, as well as *'alternative electronic networks'*, encompass the *'embryos of a new society'* (Castells, op. cit.).

When one examines the basis of the *problematic* of *informational space* and the way it is supported by the theoretical conceptualisation of the *network society*, the fundamental social interrelations between society and technology revolve around three main concepts:

- *the networking logic* - the new dominant logic of this new social structure

- *the culture of real virtuality* - the new dominant culture organised around a new form of space *(space of flows),* a new form of time *(timeless time)* and the emergence of *new cultural codes* based on the ability to communicate and interact through *new media systems*
- *the emergence of networks of social change* - characterised by the de-materialisation of power relationships, subsumed in the networking logic governed by the processes of domination in the network society.

The formalisation of this problematic fosters the idea that this new social structure is the dominant structure in changes that society is currently undergoing, although not the only one. This does not imply that contemporary urban societies are going to vanish quite the contrary. This means that both social structures coexist in different but intertwined layers. Our goal is to find out the points of intersection to ascertain the role these new media systems might play in the development of new cultural codes in social change.

In order to examine the interrelationship between the development of new cultural codes and the role information technology might play, we intend to outline a methodological 'turn' in this theoretical framework to incorporate some fundamental concepts that underpin the analysis of *the spatial practice.* This means including an analysis of the main characteristics of the *physical* dimension of information space.

The implication of the turn is that this dominant social structure, the network society, has essential social and mental features, but that these are not developed in a vacuum. Like all social structures in history, they have a material basis that is the locus of social practices.

### 1.4 Towards Virtual Geography

In outlining the virtual geography approach, Batty suggests that *'geography and its study are changing in subtle and dramatic ways in the rapid transition to a digital world'* (Batty, 1997: p.337). His analysis of these changes sets out from the perspective of traditional geography. He argues that *'geography is about place'*, but once abstracted, *'places are conceptualised as spaces'*. The interrelationship between

spaces takes precedence over the analysis of *'activities and processes in space, which break up into those that determine the physical form of the world – geomorphology; those that determine the natural form – biogeography and the environment; and those that determine the made-man form, social, economic, urban-human geography'* (Batty, 1997: p.340). On the basis of this working definition, he derives the idea of a *'virtual geography'* which is provisionally defined as *'the study of place as ethereal space and its processes inside computers, and the ways in which space inside computers are changing material place outside computers'* (Batty, op. cit.).

This approach reveals the interrelations between place and space, both inside and outside the computer. Castells' *network society* social theory, lays great emphasis on social relations. However, when it attempts to describe the interrelations between social relations, places and spaces and the digital world, his theory lacks precision in defining the specific characteristics of this digital world to support an empirical analysis on a local scale.

Batty's definition of the field of *virtual geography* converges with and amplifies Castells' conceptualisation of *real virtuality* because he links it up with the digital world, both as a mental infrastructure of social relations, and as a physical infrastructure as well. Nevertheless, Batty warns that this is only a preliminary attempt and not a complete perspective as *'virtual geography like the net and cyberspace itself is confused, anarchic, illformed and rapidly evolving'* (Batty, 1997: p.350). Yet, we endorse Batty's position since, despite the complexity and the accelerated speed of technological progress, *'some structure to what is happening to place and space is necessary'* (Batty, 1997: p.351), especially when it comes to carrying out academic research to investigate concrete networks.

Batty thinks that *'virtual geography is not merely cyberspace per se for it comprises many types of places and spaces in which the digital world finds expression'* (Batty, 1997: p.337). Hence, this preliminary definition encompasses a typology that includes three types of interrelations between place/space in the computer world: *'**cspace**, the space within computers*; ***cyberspace**, the use of computers to communicate* and, ***cyberplace**, the infrastructure of the digital world'* (Batty, op. cit.). In Batty's view, *'virtual geography is all this as well as the study of these worlds from traditional*

*geographic perspectives'* (Batty, op. cit.). These three classes of interrelations are key components in the process of building *real virtuality*, in Castells' perspective as well.[6]

When discussing the relationship between the two concepts *virtual geography* and *real virtuality*, Batty makes the following comment:

*'Castells has called this entire edifice of the network society "real virtuality". Real virtuality is not virtual geography per se but is cspace, cyberspace and cyberplace. When the geography of these digital places and spaces is also considered, then all of this comprises virtual geography.'* (Batty, 1997: p.350)

Our main argument is that Castells' sociological perspective and Batty's geographical approach converge in the explanation they provide of the relationship between place and space in the network society, although each has a different analytical emphasis. Batty concentrates on the *'impact of computation on space and place'*, and stresses that *'many facets of geography are becoming virtual'* (Batty, 1997: p.337). This perspective is of great value to understanding the concept of *virtuality* in relation to computation and communications.

### 1.4.1 Virtual Worlds/Digital Worlds

The question of the impact of computation on space and place and the constitution of what we have loosely described as virtual/digital worlds are key features in the virtual geography approach. When seen in the light of social theories, technology is conceived as a social construction. Moreover, social analysis of the impact of computation, involves raising searching analytical questions which are needed to investigate how these technologies are developed, introduced and appropriated - or rather, how they are shaping digital worlds. Our integrated approach examines the links between the virtual and non-virtual worlds.

The convergence of computation and communication in the constitution of virtual worlds is a common starting-point for any analysis. Batty's argument follows the same line of thought as Castells when he addresses the question of the pervasiveness of computation throughout the media. Both agree that this is changing the traditional bounds and constraints of space and time, not only in scale and scope, but also

[6] See: sub-section 1.3.3.

qualitatively as well as quantitatively. Batty's perspective introduces the role of computation itself. In doing so, he views computation as a *'two-way traffic in that it is largely abstract and ethereal but it is also changing the material reality, which is the subject of that abstraction in the first place'* (Batty, 1997: p.340).

The convergence between the computer and communications, for both Batty and Castells, is characterised by the Internet and the World Wide Web. In Batty's view:
*'Computing itself is drifting to the net, while computers are being used more and more as devices for actually communicating as well as computing, for accessing data, services, information of many kinds, as well as talking, browsing, and all types of communication that traditionally have taken place face-to-face'* (Batty, 1997: p.339).

This convergence between computation and communication is discussed by Batty from a perspective of virtual geography, and also comprises his analysis of the changes in computing itself. Batty argues that *'the geographical world is being changed by computation, and by the emergence of virtual worlds which have their own sense of place and space – their own geography'* (Batty, 1997: p.338).

In his argument he lays down two benchmarks that emerge from the perspective of virtual geography. The first is the question of the convergence between computers and communications. The other is related to the issue of putting *'real geography and inventing fictional geography inside the computer'* (Batty, op. cit.).

With regard to the latter benchmark, Batty mentions the role of graphics and games in computation. He states that *'it was graphics that made computers friendly and it was games that propelled them into the public consciousness'*. Furthermore he argues that it was *'from graphics interfaces that has come the retreat into virtual realities where entire environments are being constituted within the machine'* (Batty, 1997: p.338). He also claims that *'in a sense, most graphical computation is now geo-graphical. The geography might be the geography of the screen but it is more likely to be linked to the geography of the real world'*. As regards more practical applications, he gives the *'classic example in contemporary geography of geographic information systems or GIS'* (Batty, op. cit.). They are systems that allow one to put the geography of the real world into the computer and then carry out analyses, modelling and predictions.

Batty seeks to elucidate the wide range of changes that are taking place within these virtual/digital worlds. He delineates a typology to describe the interrelations between place and space inside and outside computers. However he admits that his perspective is not complete and says it *'might help us to begin an understanding, but one that is unlikely to last as this perspective evolves'* (Batty, 1997: p.351).

This new typology, although still only provisional, is of great value to this study because it might be able to help support an analysis of the interrelationship between places, spaces and new communication systems, in the local sphere of spatial relations. Until now these interrelations have only been discussed in terms of general social relations and trends within the network society. Our framework stems from the perspective that virtual worlds are socially constructed on a local scale by means of an interplay between individuals and institutions, in a larger political economy context (Kitchin, 1998: p.xi), while being mediated by technological conditions as well.

Batty's typology departs from a framework which functions at two levels. First there is a macro level, *'which is based on the distinction between place and space'*, the level of geography itself. Second there is a micro level, where *'we can define how real and imagined place/space is influencing individual and collective human behaviour'*. He adds a further level above these two which he calls a *'meta level'*. This comprises *'the geography of computers and communications'* and aims to *'explain the macro and the micro'* (Batty, 1997: p.340).

On the question of the macro level, Batty outlines four foci which involve place and space:

*'place/space – the original domain of geography abstracting place into space using traditional methods;*
*cspace – abstractions of space into c(computer) space, inside computers and their networks;*
*cyberspace – new spaces that emerge from cspace through using computers to communicate; and*
*cyberplace – the impact of the infrastructure of cyberspace on the infrastructure of traditional place.'*
*(Batty, 1997: p.340)*

He then works out a study of virtual geography through a system of interrelations between places/spaces and nodes/nets that follows the dynamic of computing development. The main characteristic of such a system is that *'once set in motion, this*

*process of influence feeds backwards and forwards in every conceivable way'* (Batty, 1997: p.341).

The need to abstract places into spaces is worth considering. Batty makes this point clear when he states that *'cspace, cyberspace and cyberplace all involve digital representation but there is a necessary translation from place to space before such digital representation is possible'*. He also warns that *'the translation from place to space usually involves non-digital abstraction, theories, models, whatever of space'* (Batty, 1997: p.341).

In our view, this translation from place to space involves mental processes and structures that have to be examined, because they determine the ability of social actors to create *new cultural codes* within the *culture of real virtuality*. This pre-condition lies at the core of our integrated approach, inasmuch as *digital translation* of places into spaces is of crucial importance in the analysis of the conditions required for successful communication within digital worlds, on a local scale.

In analysing the micro level, Batty portrays the territory of each of the place-space foci as *'an array of real and imagined geographical abstractions, diversified by the ways in which such digital abstractions might be used'*. Accordingly, *'personal, individual, organisational and collective uses in cspace, cyberspace and cyberplace abound'* (Batty, 1997: p.341).

**Cspace**

The ability to create abstractions of space inside the computer is directly related to the evolution of computers and computation from an historical perspective of technological development. Throughout the 1950s and 1960s, computers were mainly used for *'transaction processing and scientific calculation'*. In the field of geography they were seen as *'large-scale calculators, rather than as a new medium in which to conceive and manipulate geographic theory'* (Batty, 1997: p.342). At that time, as geography itself became more quantitative, the uses of computers in geographical research mainly involved *'spatial analytic models based on extensive spatial data'* (Batty, op. cit.).

From their first wide application to geography in the *'1950 US Census, with the very first development of the punched card machine'* (Batty, 1997: p.342-343), computers developed into the era of graphics representation a process which was accelerated by the development of the microprocessor. Since then, computers have been increasingly used to *'visualise what might be'*. For this reason, it is difficult for Batty to measure *'how far imagined penetrates the real in cspace'* as in one sense *'all human endeavour is a blend of the real and imagined'* (Batty, 1997, op. cit.). His approach is very close to Castells' argument in his analysis of the *culture of real virtuality.*

The way computers have become a universal machine throughout society, also applies to geography during the last 50 years. Batty defines *computable geography* as the field in which the generic features include – *'representation of (geographic) systems through data, analysis of spatial relationships, simulations of spatial processes, and applications to policy'* (Batty, 1997: p.342). Hence, among the distinct features of computable geography, there are different methods for embedding geography in *cspace,* such as: *'GIS; computer cartography; spatial analysis packages; simulation models; decision support systems; optimisation; and, computer-aided design (CAD)'* (Batty, op. cit.).

Two major innovations must be considered when the most recent technological features of the space inside computers are examined. The first is *simulation,* that is *'the essence of virtuality'*, as outlined by Batty. The second is the *'the digital relation'*. Batty defines this relation as the ability to *'link any aspect of software or data to any other within any application'*. He argues that this is similar to *'networking within the machine'* (Batty, 1997: p.343).

### Cyberspace

The conceptualisation of *cyberspace* has already been discussed in this chapter[7]. This concentrated on laying down the main theoretical perspectives required for the social analysis of the impact of information technology on cities. A preliminary definition has been made which is relevant to the debate about the *Internet* and *virtual*

[7] See: section 1.2.

*technologies*, together with other social, cultural, political and economic analytical perspectives (Kitchin, 1998: p.3-8).

Batty (1997) and Kitchen (1998) provide a similar historical overview of the development of *cyberspace technology* and agree that this is a very recent phenomenon. Batty identifies three different phases that marked the emergence of cyberspace during the 1960s and 1980s. The first phase covers the origins of the Internet which started in the US Department of Defence (DARPANET) and was designed as a network to withstand a possible nuclear holocaust. It soon moved into the academic field and, by the mid 1980s had spread to a number of academic networks from simple e-mail to Unix-based networks (Batty, 1997: p.344).

The second phase was the development of *local area networks* that began to emerge in the mid-to-late 1970s as a result of commercial initiatives, and introduced the idea of *clients and servers*. In view of this, Batty argues that *'most of the 1980s was based on the remote connection of dumb terminals to main-frame or minicomputers on which applications were run with perhaps constellations of those computers sharing tasks.'* This soon started to change and *'servers were used to download information to remote machines'* (Batty, 1997: p.344). The third phase started in the late 1980s and was characterised by *'proprietary internets offering e-mail and bulletin boards and commercial information of all kinds'*. This made it possible to extend access beyond the academic networks (Batty, op. cit.).

Batty argues that in the 1990s *'computation can take place between any place and any other, software and data can be similarly remote, and processing can take place anywhere and everywhere'*. He goes on to suggest that *'the best example of these phenomena is the rise of the World Wide Web'*, which is in many ways *'the visual interface to the net'*. He adds that *'any type of human interaction has some potential to be representable in cyberspace'* (Batty, 1997: p.344).

This is why he thought that if the question of the limits of cyberspace geography is to be fully addressed, its activities should be identified and analysed.

*'(...) a number of activities for production or consumption for work or leisure, both in routine and less routine context are beginning to find their expression across the net, while within these, generic*

*activities such as communication, learning, simulation and decision are all behaviours that are being influenced by digital interaction.'* (Batty 1997: p.344-345)

Among routine activities, Batty describes a number of online activities such as banking, shopping, and cybermarket, some of which represent an extension of passive information systems, as in the case of *Cybermalls*. He thinks that another growing area is the low level consumption for leisure goods. The *Web* is dominated by such sites, *'which represent the simplest way to engage in cyberspace'*. But, he believes that cyberspace is of special value in the analysis of less routine activities. For instance, sciences across the net *'provides new ways of articulating theory, experiment, research and development'*. He thinks the most relevant aspects of *cyberspatial technology* uses in geography are in the prospects they hold out of collaboration within the academic community that *'offers the prospects of remote experimentation.'* As the net *'provides new structure to action which involves a truly different development of institutions for sociality'* (Batty, 1997: p.345).

Batty then briefly gives some examples of urban planning, i.e. *'real time monitoring of routine urban change* (movement, micro-climate and pollution patterns) *that is now possible on the net and provides data sources relevant to a new array of micro-simulation models'*, as well as less routine information, i.e. *'census data, the geometry of the built environment and various value-added data products'* (Batty, 1997: p.345), that is now accessible for processing in the same way.

### Cyberplace

In Batty's study of virtual geography, cyberplace is defined as *'the substitution, complementation, and elaboration of physical infrastructures based on manual or analogue technologies by digital'* (Batty, 1997: p.346). He suggests that although cyberspace and cyberplace can sometimes merge imperceptibly, insofar as both the computer and the networks have a physical presence, the examination of cyberplace looks at its more specific uses. Cyberspace consists of all the wires that *'comprise the networks that are being embedded into man-made structures such as roads and buildings'* (Batty, op. cit.). He gives some examples of command and control

structures, i.e. from CCTV in public places to *smart buildings*, arguing that *'they are part of cyberplace although their use might be classed as cyberspace'* (Batty, op. cit.).

He says that it is still *'an open question as to whether cyberplace encompasses the natural world for there are clear signs that nature is being complemented by digital devices'* (Batty, 1997: p.346). He argues that for the purposes of the study of virtual geography *'the focus is in the processes that are now defining places and the way those networks are used physically'* (Batty, op. cit.). For this reason, one of the limitations of the field of virtual geography is the fact that *'networks are largely invisible to immediate observation'* (Batty, op. cit.). Moreover, he thinks that the phenomenon has not been the object of systematic investigation so far. He hypothesises that *'cyberplace seems to be reflecting traditional place but cyberspace is clearly changing this'* (Batty, op. cit.).

Batty summarises examples of these changes, i.e. wired buildings and the prospects of digital sensor within cars, wired roads and wired highways. However, he concludes that *'the most perplexing developments in cyberspace involve communications without wires'*. He argues that *'although networks are hard to see they do exist physically, but wireless communication is through the ether and the impact on physical, material infrastructure is indirect'* (Batty, 1997: p.347).

This is the point where this typology begins to reach its limits; however he adds that the value of this proposition lies in its ability to examine the *'boundaries of the classes where experimentation and innovation dominate'* (Batty, 1997: p.347).

### 1.5 Theoretical Propositions

Our examination of current trends in information technology and its impact on cities has brought out the complexity of the interrelationship between *urban space* and *informational space*. Our framework encompasses two complementary theoretical lines for studying informational space in an integrated way – the *network society* theory and the *virtual geography* approach. They both set out from an epistemological position that informational space is a complex process; it is created by society and constructed by a specific culture. While the network society addresses the *problematic*

of informational space in a more conceptual and theoretical way, virtual geography allows one to examine the *spatial practice* of informational space in terms of its technological characteristics. This means that theorising must be undertaken at both an analytical level, that centres on the definition of a set of conceptual categories drawn from the *network society* theory[8], and at a descriptive level, that outlines a typology for studying the *virtual geography*[9] of informational space.

It is worth pointing out that the network society theory, as outlined by Castells, has been at the centre of heated debate in recent years, although most academics and theoreticians agree in commending Castells' analysis for its diversity, subtlety and accuracy (Webster, 1997a: p.71; Kitchin, 1998: p.164; Ladipo, 1997: p.131; Downey, 1999: p. 206; and Watson, 1997: p.133). As regards Castells' theoretical propositions, some critics oppose his account of the genesis of a *New World* in the *Information Age* while others support his social constructivist approach to the information society. Whereas the former highlight the controversial aspects of globalisation and the restructuring of capitalism, Castells' supporters focus on the strengths of his theoretical categories and his perceptive analysis of social change.

On the question of globalisation, the analysts tend to disagree about the role that Castells assigns to the *technological revolution* in restructuring capitalism and his definition of the information technology paradigm. For example, in contrast to Castells, Webster (1997, 1997a) regards the role of information technology as being *'an integral element of the continuous adaptation and expansion of advanced capitalist forces which were facing a particular set of circumstances'* (Webster, 1999: p.60). This analysis (Webster 1997: p.105-121 and 1997a: p.71-83) conflicts with Castells' conceptualisation of an *informational capitalism*, an *informational mode of production* and an *informational labour* (Castells, 1996: p.60-65). Webster casts doubts on both Castells' explanation of *change* and his concept of *information* (Webster, 1997: p.80-83).

Viewed from our theoretical perspective, Castells' main contribution to the IT revolution is the role he assigns to technology as a process of furthering knowledge:

[8] See: section 1.3.
[9] See: section 1.4.

*"(...) what characterises the current technological revolution is not the centrality of knowledge and information, but the application of such knowledge and information to knowledge generation and information processing/communication devices, in a cumulative feedback loop between innovation and the uses of innovation".* (Castells, 1996: p.32)

As a result, *'diffusion of technology endlessly amplifies the power of technology as it becomes appropriated and redefined by its users'*, in the sense that these information technologies '*are not simply tools to be applied, but processes to be developed'*. Furthermore, *'users and doers may become the same'*, as is the case of the Internet where *'users can take control over technology'*. Hence, what follows is *'a close relationship between the social processes of creating and manipulating symbols (the culture of society) and the capacity to produce and distribute goods and services (the productive forces)*. This raises the possibility that the human mind might be a *'direct productive force, not just a decisive element of the production system'* (Castells, 1996: p.32).

The conceptualisation of information technology, not as a tool but as a process to be expanded for the development of knowledge, provides a theoretical support for our approach to the analysis of informational space. It forms the basic theoretical link that integrates the three analytical fields of our framework – urban space, urban planning and socio-cognition.

Castells' view of the *'new world'* crystallizes a number of interlocking factors arising from what he regards as *'the historical coincidence, around the late 1960s and mid-1970s, of three independent processes: the information technology revolution; the economic crisis of both capitalism and statism, and their subsequent restructuring; and the blooming of cultural social movements, such as libertarianism, human rights, feminism, and environmentalism'* (Castells, 1998: p.336). His analytical perspective is the outcome of a number of new social 'events' which can be seen from three perspectives: *a new dominant social structure, the network society; a new economy, the informational/global economy; and a new culture, the culture of real virtuality'* (Castells, op. cit.).

Castells' propositions can be analysed in another way by focusing on the relationship between two of the processes - a new social structure and a new culture. In fact, the

interrelationship between changes in social structure and culture, forms the conceptual basis of our analysis of social change and informational space.

### 1.5.1 Conceptual Categories

This research seeks to explore the embryonic aspects of informational space in the particular cultural context of Brazilian cities, where social contradictions are the dominant pattern in the socio-economic and political relations of a highly segregated society, and where there is a huge gap between technological development and social underdevelopment. This represents our epistemological position; it requires consideration of three conceptual categories when addressing new patterns of social struggle in a global perspective and the emergence of alternative electronic networks on a local level.

The first of these categories is the dominance of the *networking logic*; the second is the cultural dimension of *real virtuality* within these transformations; and the third is the embryonic development of *networks of social change*.

#### Networking Logic

The networking logic, when conceived as the outcome of the technological revolution paradigm in informational capitalism, obeys the capitalist logic of exclusion and concentrates on the significant nodes of capitalist expansion, on a global scale. Hence, the networking logic entails social/economic segregation and exclusion. At the same time, this logic creates the right conditions for the development of informational space, which is produced by society and constructed culturally on a local scale.

This logic constitutes a dominant pattern which prevails both in the processes of social transformation and in the entire social structure, while accounting for the links that exist between society and technology. Being the dominant logic of society, it can be analysed in any concrete form of social structure and is thus a basic conceptual category which can lend support to our empirical investigation.

Our research analysis has been carried out at two empirical levels: first, there is the macro level that focuses on the study of concrete structures - the network of Brazilian

cities; then there is the micro level that centres on the impact of concrete structures within cities - the case study of Porto Alegre's Popular Administration.

The study of these concrete structures follows the guidelines of two analytical categories – *morphology* and *topology*. The main attribute of the network morphology is *openness*, and this might have an influence on the social, economic and political aspects of the network that connects Brazilian cities and explains the particular position of Porto Alegre within this concrete structure, on a macro scale. This category also strengthens the empirical analysis of the case-study of Porto Alegre and the setting up of intra-city networks between the municipal institutions that connect local government and citizens.

The topological category is useful to both our theoretical framing and empirical investigation. The notion of the topological relation of relevance is an intrinsic part of the analysis of the case-study, because it allows us to describe inequality and social exclusion in the network society. *Presence* or *absence* in the network and the *dynamic* of networks in relation to each other are central concepts in our investigation of social change and represent the dominant process that is occurring in the peripheral cities of the global network.

The analysis of distance within the networking structures demonstrates that there have been crucial changes in two essential concepts that govern the material basis of society – *space* and *time*. In view of this, two further analytical categories must be considered in the investigation of these new forms of social structures, namely - *timeless time* and *space of flows*.

Two interrelated ideas emerge from the concrete structures of the network society and these involve analysing new forms of time. The first refers to *'time annihilation'* or *'desequencing'* and the dominance of timeless time within the networks. The second refers to the fact that most people are still controlled by biological and clock time simultaneously, especially in the case of Brazilian society.

The second category, the space of flows, refers to the emerging dominant spatiality that enables the material organisation of time-sharing social practices through flows.

Thus, the main attribute of space of flows is a lack of *physical contiguity*. These new forms of material support are made possible by introducing information technology devices, where the communication network is the fundamental spatial configuration.

The analysis of concrete structures also suggests that there is a dialectical relationship between the *space of flows* and the space of places, where the dominance of the space of flows is being subverted by new social movements. This interrelationship is a driving-force in our empirical investigation and allows us to forge links between urban planning and socio-cognition.

The concept, *space of places*, is traditionally associated with the area of urban planning, as it encompasses the real life places that are used as the raw material by planners. These changes of function, meaning and the 'dynamic' of places, through the dominant logic of the space of flows are challenging the traditional ways of planning urban places. Furthermore, the emerging subversion of this dominant logic is relevant to the debate about social integration in the informational society, particularly where there are conditions of extreme inequality.

**Real Virtuality**

Real virtuality is the key theoretical concept for explaining the nature of the interrelationship between communication and culture, when viewed from the analytical perspective that spatio-temporal configurations are of crucial importance for understanding the meaning of each culture and its evolution. Hence, culture can be regarded as a particular social construction of each society and a phenomenon that results from changes occurring in technology, space and time. Real virtuality expresses these changes through a new communication medium and depends on the electronic integration of all means of communication. Our empirical investigation relies on this analytical category to study the specific conditions of this complex environment and the changes in socio-cognitive practices which are taking place in Porto Alegre's municipal institutions.

The main attributes of this new system of communication are *inclusiveness*, *comprehensiveness* and *interactivity*. These three characteristics of the new systems of

communication display great qualities of *flexibility* and *inclusion.* Moreover, they are useful when producing new cultural texts and thereby create new cultural codes that mould the dominant *culture of real virtuality.*

**Networks of Social Change**

In the framework of this thesis, the perspective of social change within information space is related to the nature of power relations. The ability of the human mind to create new cultural codes within real virtuality, codes which are mediated by new electronic systems of communication, leads to the appearance of networks of social change which are opposed to the dominant networking logic. When the openness of the network morphology is associated with the inclusiveness and comprehensiveness of real virtuality, the conditions are created for a dialectical process in which the networking logic of the global elites dominates local societies. The conditions that allow the development of the network of social change are inherent in this dialectical process.

However, if these challenges are to be overcome, the social actors have to be able to construct their own meaningful cultural codes within real virtuality itself, either individually or collectively. Power within this new social structure is no longer concentrated just in the institutions, organisations or symbolic controller, but rather is invested in the codes of information which societies comply with when running their institutions and which also govern the lives of the people. For this reason, power is concerned with peoples' minds and their ability to construct new cultural codes within informational space.

It is, thus, from a perspective of social change, that this study attempts to adopt an integrated and dialectical approach when carrying out an analysis of the social and cultural conditions required for the rise of informational space.

### 1.5.2 Typology

The virtual geography typology allows one to classify an amalgam of different layers of digital spaces and places that encompass the concept of informational space. The

study of the overlaps between the different layers of virtual geography – *cyberspace/cspace* and *cyberspace/cyberplace* are designed to establish the links between space and places. This typology of layers is a basic analytical tool for providing a geographical dimension to real virtuality.

The study of *cyberspace*, from the perspective of virtual geography, enables us to link the concept of power relations with real virtuality. The construction of cyberspace leads to a cycle of mental abstractions from places into spaces and back again. This means that real places have to be translated into computer spaces before *cspace* can be built. In carrying out this translation, it requires considerable ingenuity to create symbolic meaning within these virtual environments. Once the environment is built up and active within cyberspace, meaningful social relations take over, and symbolic meaning is restored to urban space at the points of intersection with cyberplaces, and thus shape the culture of real virtuality. Hence, power relations are related to knowledge-building.

In our view, the ability to build new cultural codes and the mental processes involved in their socio-cognitive construction form the theoretical basis for the analysis of social change within the network society. This interrelationship might provide a theoretical explanation as to how a paradigmatic shift occurred in the use of advanced information technology and whether or not, in the case of Porto Alegre, citizen participation has become empowered in the decision-making process.

Chapter 2

# Informational Space and Participatory Planning: from Insurgent Practices to Online Planning

## 2.1 Introduction

The conceptualisation of informational space, as outlined in our framework encompasses the intersection of three fields of knowledge in the area of information technology: urban space, urban planning and socio-cognition. Chapter 1 provided an analysis of the interrelationship between urban space and informational space from the perspective of urban social theories. Chapter 2 adds the field of urban planning to this theoretical framework. Stress is laid on how participatory planning links with information technology and how both fields overlap and tie up with the third field of knowledge - socio-cognition.

The main theoretical question at issue in this chapter is – *how information technology is changing the ways we think about, plan and manage our cities within the network society.* The subject leads on to a wider debate that is just starting to take place in the academic world.

## 2.2 Participatory Planning and Social Change in the Network Society

Participatory planning has been the subject of much controversy among planners, whether academics or practitioners, since urban planning was institutionalised in the last half of the twenty-century (Hall, 1988: p.322). The origins of this debate are examined here from 2 perspectives: a) the history of urban planning as an academic discipline and a professional activity b) the political dimension of the planning practices that are embedded in power relations within the public sphere of decision-making in modern democratic societies. This political dimension and its attendant ideological constraints have generated a good deal of conflict and tension between planners and citizens in different historical-geographical circumstances.

These two focuses of debate have been recurring issues in the agenda of practitioners/ planners, as well as in academic discussion about planning theory. In view of this, it

would go far beyond the limits of the present inquiry to address the main questions of planning theory in a comprehensive way (Campbell & Fainstein ed., 1996). What is attempted instead is to join the debate by adding new perspectives for planning practices which have been brought into being by the impact of the informational revolution.

### 2.2.1 Planners: limits of planning theory and planning practices

These essential theoretical questions emerge from the issues of participatory planning when seen from the perspective of the history of planning theory – *what is planning about, what is it that planners do* and *how do planners do it?*

The subject of planning theory is not easy to define. Campbell & Fainstein (1996) argue that there are four reasons for this difficulty. They claim that *'planning theory appears to overlap with theory in all the social sciences disciplines'*. Then there is the question of *'the boundary between planners and related professionals'* which is not mutually exclusive. Third, there is an internal division in the field of planning between *'those who define it according to its object and those who do so by its method.'* Fourth, being a multidisciplinary field, planning usually *'borrows diverse methodologies from many different fields.'* These authors thus imply that as a result of the *'amorphous quality of planning theory, practitioners largely disregard it'* (Campbell & Fainstein, Ed., 1996: p.2).

A brief historical overview should be given before approaching the interrelationship between planning theory and planning practices so that the different historical periods, since planning was institutionalised can be examined (Hall, 1988: p.340-341).

#### The stages of planning theory

Hall analyses the connection between the continuous search for new planning paradigms and the dialectical link between theory and practice in urban planning, from a historical perspective (Hall, 1992: p.246-250). He mentions three different stages in the evolution of planning theory that can be briefly summarised as follows:

- *'from the earlier times down to the mid-1960s': the master plan or blue print era;*

- *about 1960s: systems view of planning;*
- *from the late 1960s and the 1970s onwards: more heterogeneous and more diffuse, planning as continuous participation in conflict'* (Hall, 1992: p.228).

In the first stage, the spatial plan was the main goal of the planner and was characterised by very little or no public participation at all. The planner acted as the *translator* of the *public interest* with regard to city development (Hall, 1988: p.322). The concern of the master plans was to *'set out the desired future end state in detail, in terms of land-use patterns on the ground'* (Hall, 1992: p.228-229).

In the second stage, spatial planning is incorporated in the idea of a broader complex system, where *'all planning is a continuous process'* (Hall, 1992: p.228). In this structure *'plans concentrated on the objectives of the plan and on alternative way of reaching them, all set out in writing rather than in detailed maps'* (Hall, 1992: p.229). The introduction of the *system approach* for planning has undergone major modifications in planning practices, as well as in the academic world. These are concerned not only with the development of new methodologies, but also with the development of specific computer tools to work with complex urban phenomena, especially forecasting, modelling and plan design. Yet, the practical and political aspects of how to integrate public participation in the process of decision-making remain unsolved (Hall, 1992: p.246).

The third stage has resulted from a strong reaction to the *style of system planning* (Hall, 1992: p.246), in which the basic tenets started to be heavily criticised. This was on account of the scientific and value-free approach to the rapid growth and change of modern industrial society. Although public participation had been formally incorporated in the planning process by this time, the very characteristics of the method employed within systems planning have reduced it to a *'mere consultation of the public'* (Hall, op. cit.)

Hall identifies three approaches in his analysis of the planning process and the question of the legitimisation of planning with regard to the increasing social problems caused by capitalist urbanisation during this period: the *Political Economy school*

(Hall, 1992: p.247); the *Distributionist school* (Hall, 1992: p.248); and the approach on *generating economic growth* (Hall, 1992: p.249).

Drawing on his historical analytical perspective of the different approaches and the cyclical search for new planning paradigms, Hall concludes that *'planning, in other words, is merely an acute instance of the central problems of society'*. These conclusions lead him to ask – *what, then, is the methodology of planning? How does it seek to resolve such a set of major problems?* (Hall 1992: p.249-250)

In our view, these are the fundamental questions of the interrelation between planning theory and planning practices that still remain open. The last two decades have witnessed the rise of multiple new styles of planning (or methods to approach the question of decision-making), with a number of dominant approaches ranging from *comprehensive*, *incremental*, *advocacy*, *equity*, *strategic* to *postmodernist* and *communicative* planning.

However, our epistemological position, supports Lefebvre's view that the interrelationship between planning practices and theories is the outcome of social and political constructions, occurring to different historical/ geographical conditions, inasmuch as they are permeated by ideological constraints:

*'There is no doubt that a world front is possible, and equally that is impossible today. This utopia projects as it often does on the horizon a 'possible-impossible'. Happily, or otherwise, time, that of history and social practice, differs from time of the philosophies. Even if it does not produce the irreversible, it can produce the difficult to repair. Marx wrote that humanity does not only ask itself problems that it can solve. Some today believe that men now only ask themselves insoluble problems. They deny reason. Nonetheless, there are perhaps problems which are easy to resolve, whose solutions are near, very near, and that people do not ask themselves.'* Paris, 1967. (Lefebvre, 1996: p. 181)

### 2.2.2 Theoretical Practices of Planning

An analysis of the different epistemological positions that have governed the planning practices in the last four decades of institutionalised planning, is essential to understand the present dilemmas of *planning praxis – conceived as theoretical informed practice* (Sandercock, 1998a: p169). It raises a basic theoretical question –

*how might planning praxis engage with the transformations of society on a global scale and, at the same time, with the city on a local scale?*

A brief chronological overview of the diverse epistemological positions in planning practices is provided, in order to add a *praxis* approach to the previous historical analysis of the planning theory/methods. As these are complementary perspectives in the analysis of the interrelationship between theory and praxis in urban planning.

Sandercock, in her critical analysis of the modernist planning paradigm, states that *'within the modernist paradigm there have been a succession of competing theories'*. She analyses six different stages of planning practices that during the last fifty years have sought to redefine *'what is it that planners do, not so much in terms of substantive fields but in terms of approach, process and alliances'* (Sandercock, 1998a: p169). The goal of this discussion is to stress that *'planners do learn from mistakes and examine their practices critically'*. At the same time, it is to demonstrate that *'all the six paradigms of planning are alive (and reasonable well), and adhering to one rather than the another involves a political choice rather than scientific verification'* (Sandercock, 1998: p.103).

**The stages of planning practices**

The first stage is defined as the *rational comprehensive model*. Sandercock's characterisation of this model (1998) follows the same general lines as the one outlined by Hall (1992) discussed earlier. This model was predominant in the two decades after the Second World War and was mainly shaped by the University of Chicago planning program. Despite criticism of its *instrumental rationality* and *top-down* approach, it has become the dominant paradigm in planning and still continues to win adherents and *'a whole planning culture has been built cultivating such methods'*. (Sandercock, 1998a: p.170).

This mode of theorising was informed by *'a belief in the possibility of greater rationality in public policy decision making'*. Theorists in this model have shared *'a faith in instrumental rationality'*, for them *'it was a given that technology and social science could make the world work better, and planning could be an important tool for*

*social progress'*. The planner, in this model, was *'the knower, relaying strictly on his professional expertise and objectivity to do what was best for the public'*. The public, on the other hand was a notion that was *'never critically examined, implying an undifferentiated, homogeneous group in which differences of class, or race, or gender, were not consider relevant "input".'* This model also assumes *'a benign state, and a state whose structure is neutral'* (Sandercock, 1998a: p169-170)

The second stage concerns the *advocacy planning model.* It was the first serious challenge to the rational comprehensive model that started in the mid 1960s in the United States. Sandercock argues that the main idea, in this model as outlined by Darvidoff (1965)[1], was that *'public interest was not a matter of science, but of politics and urged planners to participate in the political arena'* (Sandercock, 1998a: p.170).

Criticism of this model has come from within, as the advocacy planners themselves have started to realise the limits of this approach and to criticise their own work as being the *'manipulator model'*[2] or the *'soft cops of the system'*.[3] This experience with advocacy planning expanded the role of the professionals but *'left the structure of power intact, confident in the workings of plural democracy'*. However, the professionals drew different conclusions from this experience, either by *'allying themselves with progressive politicians and doing equity planning'* or, by becoming *'advocates for citizen participation'* (Sandercock, 1998a: p.172). New ideas were formulated from this including – *'transactive planning, mutual learning and social learning'*,[4] while a third group moved towards a more radical position. Sandercock argues that they *'drew the more radical lessons and moved towards an empowerment model'* (Sandercock, op. cit.).

The third stage of planning practices comprises the *radical political economy model* which she characterises as an *'entirely new narrative and analysis'*, within the perspective of the Marxist narrative. Her criticism of the practical results of this model

[1] Davidoff, P. (1965) *'Advocacy and Pluralism in Planning'*, published in the Journal of the American Institute of Planners (referred to in Sandercock, 1998a: p.170).
[2] Peattie, L. (1968),*'Reflections on Advocacy Planning'* In: Journal of the American Planning Association. Spring v60 n2: 151-3 (referred to in Sandercock, 1998a: p.171)
[3] Goodman, R. (1972) *After the Planners,* London: Penguin. (referred to in Sandercock, 1998a: p.171)
[4] Friedmann, J. (1973) *'The Future of The Urban Habitat' The Place of Planning: The 1971-72 Lectures in Urban and Regional Planning.* Auburn, AL: Auburn University Printing Service. 105-41(referred to in Sandercock, 1998a: p.172)

is similar to that of Hall. They both argue that the results of the analysis of the radical political economists have had a paralysing effect on planning practice *'exacerbating already existing divisions between theorists and practitioners'* (Sandercock, 1998a: p.172). As a result of this, her evaluation of the lasting value of this model in relation to planning is similar to Hall's (1988: p.339) evaluation. They both note that its value is located at the level of critique rather than action.

The fourth stage of planning practices is derived to some extent from the advocacy movement. It has been called *the equity planning model.* Sandercock places *Norman Krumholz*[5] and *Robert Mier*[6] among the most prominent practitioners of this model in the United States. Hence, equity planners are *'those that consciously seek to redistribute power, resources or participation away from local elites and toward poor and working class residents',*[7] by choosing the politicians whom they want to work for (Sandercock, 1998a: p.174).

The main criticism of this model is that *'the planner is still the centre of the history, the key actor.'* Sandercock argues that what planners do is just redefined in a broader perspective, in relation to the rational comprehensive model. Equity planning is *'still engaged in a top-down politics, only now it is a consciously politicised practice, and its allegiances are consciously directed to those who have been excluded'* (Sandercock, 1998a: p.174).

The fifth stage termed *the social learning and communicative action,* also derived from the advocacy movement and the lessons some planners learned from their experiences with communities – their local knowledge and their political skills. Among the main theorists and practitioners engaged in these perspectives, Sandercock draws attention to two classic works in this field (a) Friedmann's *'transactive style of planning'*[8] and (b) Forester's *'critical planning'*[9] theory on the basis of Habermas'[10] concept of *'communicative action'*. (Sandercock, 1998a: p.175).

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[5] He was *'chief planner for the city of Cleveland for a decade in the 1970s'* (Sandercock, 1998a: p.173).
[6] He was *'Head of economic development planning during the regime of Harold Washington as Mayor of Chicago in the 1980s'* (Sandercock, 1998a: p.173).
[7] Krumholz, N. and Forester, J. *(1990) Making Equity Planning Work* (referred to in Sandercock, 1998a: p.173)
[8] Friedmann (1973) *'Rethinking America'*, referred to in Sandercock (1998a: p.175).
[9] Forester (1989) *'Planning in the Face of Power'* referred to in Sandercock (op. cit. 8).
[10] Habermas, Jurgen (1981) *The Theory of Communicative Action, 2 vol.* Trans. Thomas McCarthy. Boston: Beacon Press (referred to in Sandercock, op. cit. 8).

Sandercock's main criticism of the *communicative model* is that although they *'use and distribute knowledge'*, the formally educated planner working for the State is still the *'primary actor'*. Thus, despite being a more *'inclusive theory'*, it acknowledges, *'but then brackets, the problem of structural inequalities'* (Sandercock, 1998a: p.175). Furthermore, *'it treats citizenship as an unproblematic concept which is gender and race neutral'*, and in this process *'suppressing the crucial question of difference and marginality and their relationship with social justice'* (Sandercock, op. cit.).

In the sixth and final stage, she turns to analysing the questions of *difference* and *social justice* and to the work of the planners who have been trying to work out what she called *the radical planning model.* Sharing her perspective, is a *'small community of scholars who have sought to outline a radical or emancipatory practice in the past two decades'* (Sandercock, 1998a: p.176).

Sandercock states that in this model, planners find a new meaning in *inequality.* In the period 1960-90 (and especially the mid 1970s) a Marxist approach was adopted to probe the causes of social and economic inequality in a radical way but from a perspective of class distinctions (Harvey and the early Castells). It soon became clear to a number of 'activist planners' that *'the "poor" and the "oppressed" were not a homogeneous "mass", but rather spoke with many voices'* (Sandercock, 1998a: p.176). Questions of social justice and the city were expanded to include questions of inequalities of gender and race, etc. This paved the way for a new field of Marxist analysis and praxis.

The main characteristics that bind the efforts of all these groups together involve a radical epistemological break with earlier theoretical thought and an alternative planning praxis. Sandercock states that the main question they address is – *'what planners can do about any of these inequalities?'* (Sandercock, 1998a: p.176).

Sandercock's argument is that from an epistemological perspective, it is possible to identify two major positions among radical planners that are related to their vision of the role of the State in fighting inequality:

(a) radical planners that have experienced advocacy planning in the late 1960s and decided to establish a 'crossing-over' as planner activists by working outside the state bureaucracy as community-based planners

(b) radical planners that maintain their professional identity and for whom community-based movements play an important part however, they are not the only social actors involved in the struggle for a new society.

For the first group of radical planners, it is the community who initiates the process and the planner *'enables, assists, but never imposes her/his solutions and only offers advice when asked'* (Sandercock, 1998a: p.178). Hence, radical planners might *'help them with research and preparation of documents, advises on how to deal with bureaucracies, but never do these things "for" the community, always "with" them'*[11] (Sandercock, op. cit.).

Regarding the role of the State, she argues that this position does not mean that *'community-based planners have nothing to do with the state'*. Their approach is *'to think strategically about the state, to make alliance with those planners who do work within state agencies and who might be regarded as friendly to the cause'* (Sandercock, 1998a: p.178). Besides, the knowledge these planner activists have of the workings of the state *'is invaluable to the community with whom they are working'* (Sandercock, op. cit.).

The second group stems from Friedmann's conception of the radical planning model. This is concerned with the notion of professional identity and, at the same time, with the role of the State. For Friedmann *'any social advances achieved through a radical planning that by-passes the state "will quickly reach material limits. To go beyond these limits, appropriate actions by the state are essential"* (Friedmann, 1987: p. 407).[12] Sandercock's view supports Friedmann's position by stating that:

*'Clearly the state has been the missing ingredient so far in the discussion of radical planning. And while it may well be a contradiction in terms to think of the state engaging in radical planning, it may be equally misleading to think that radical planning can do without the state'* (Sandercock, 1998a: p.179).

[11] Heskin and Leavitt's position as described by Sandercock (referred to in Sandercock, 1998a: p.178).
[12] As referred to in Sandercock (1998a: p.179).

Sandercock's criticism of the radical planning thinking raises another important theoretical question - the concept of *community* in relation to the role of the state. She criticises the concept of community implicit in the radical planners' approach. She argues that for most radical planners *'the community has been reified and romanticised'* (Sandercock, 1998a: p.179).

She suggests that there is a difficult question in contemporary political theory that planners have to face which is implicit in the debate on the *community* and *State* – *'what rights should communities as collectivities have vis-à-vis individual rights on the one hand, and the rights of the larger society on the other?'* (Sandercock, 1998a: p.179)

In her analysis of radical planning practices, Sandercock suggests that *'it is this antagonistic and yet also dialectical relationship between the state and the mobilised community that radical planners have yet to address'* (Sandercock, 1998a: p.179). She concludes her analysis with some suggestions of steps to be taken in order to address this fundamental question. Her first step involves a re-thinking of the relationship between the state and communities.

She argues that to achieve this new goal, planners should learn to work with *'the tension between the transformative and repressive powers of state-directed planning practices and their mirror image, the transformative and also repressive potential of the local, the grassroots, the insurgent'* (Sandercock, 1998a: p.179-180). In order to strike a balance between *'state-driven planning'* and *'insurgent practices of mobilised communities'*, radical planners need *'a different kind of professional practice, different in both objective and method'* (Sandercock, op. cit.).

There are two key issues here – the objectives and methods of planning; these have been at the centre of the debate about planning theories and practices at the turn of this century and it is pointless to say that this is simply history unfolding. It should be reiterated that the goal of this thesis is not to seek a new theoretical model for planning practices, but rather, to focus on the analysis of local experiences during this period and use them to build theoretical propositions.

On the question of planning methods, Sandercock states that the *'theory of knowledge'* underlying radical planning is *'an epistemology of social learning and of multiplicity'*. In her view, this supports the idea that action is primary, while at the same time, she stresses that *'we need to develop new ways of knowing and being as well as new ways of acting'* (Sandercock, 1998a: p.180).

**Re-defining civil society and citizenship**

In his analysis of an approach to planning in the new political economy, Friedmann focuses on the present conditions of citizenship within society and the state. He focuses on the relationship between the planning profession and the State, and adopts a general approach that adds to Sandercock's analysis within this debate:

*'This, then, is what we have come to in four decades of planning, starting from a credo in a centralised, benevolent state which as assumed to have a far-sighted and comprehensive vision of the public good to the present welter of a triumphant market economy driven by global competition, en emasculated national state in retreat, a plethora of social movements vying for our attention and support, and a burgeoning sector of voluntary organisations competing fiercely among themselves for private and public resources that are becoming ever more scarce'* (Friedmann, 1998: p.20).

Friedmann states that the challenge for planners is how to redefine themselves and their profession. Although many planners have been involved in the *'actual struggles for greater citizen participation, community-based development, and for the aims of new social movements, from feminism to ecology'*, the very activism entailed in the profession of the planners may have prevented them from recognising the new configurations of power. For this reason he advises planners to engage in a theoretical debate based on the *'re-emergence of civil society as a collective actor in the construction of our cities'* (Friedmann, 1998: p.20-21).

He argues that the definition of *civil society* has a philosophical origin[13] and, as in the case of the human sciences, it has an associated heuristic value so that its meaning remains fluid. Friedmann's view is that *'civil society designates those social organisations, associations and institutions that exist beyond the sphere of direct supervision and control of the state'* (Friedmann, 1998: p.21). This core meaning is

[13] Modern sense of the term as defined by Hegel in his *Philosophy of Right* and, in a less philosophical manner, as used by Alex de Tocqueville in his classic study *'Democracy in America'*, as referred to in Friedmann (1998: p.21)

open to two different interpretations. On the one hand, there is the view of conservative critics that *'see civil society as essentially composed of institutions – neighbourhood, family, church and voluntary associations – that mediate between the individual and the state'* (Friedmann, op. cit.). In contrast, the view of intellectual radicals lays emphasis on *'political mobilisation and active resistance to a hegemonic discourse.'* Hence, they dwell on *'social movements, self-management and the practices of direct democracy'* (Friedmann, op. cit.).

Friedmann argues that it was the *'earlier movements in South America, especially in Brazil, Argentina and Chile, which first led to the reappearance of civil society in sociological literature'* (Friedmann, 1998: p.21). He suggests that more recently discussion about civil society has broadened to include topics such as *'participatory democracy, the social meaning of citizenship and justice in postmodern society'* (Friedmann, op. cit.).

He defines the four spheres of action of civil society as: the sphere of opposition to the state; the sphere of opposition to the corporate economy; the sphere of opposition to capital commodification and the sphere of political community or, the domain of political conflict and struggle. Friedmann argues that *'when these four overlapping and intersecting spheres of action are inscribed within territorial bounds, they may be said to constitute a social formation'* (Friedmann, 1998: p.21-22). Yet, he acknowledges there have been changes within these boundaries:

*'civil society is lodged within the territorial limits of a state, region, city or neighbourhood, but is linkages and networks extend increasingly beyond these boundaries to the rest of the world through electronic media, the migration of kin and friends, and associational bonds'* (Friedmann, 1998: p.23)

Friedmann claims that civil society is not a homogeneous sphere, but rather a dynamic process based on deep divisions of *'class, gender, religion, ethnicity, race, access to household resources and other social markets'* (Friedmann, 1998: p.23). These are basic divisions to be taken into account precisely because they are major sources of conflict both within civil society itself and in the wider political domain.

He also notes that the idea of the *'household moral economy'* is central to the organisation of civil society, while being based on all that works on the basis of

*reciprocity* and *trust*. He adds the concept *'household's bases of social power'* to explain the condition of poverty, which cannot be reduced to *'a mere condition of low income. In structural terms, it is also a result of low access to resources necessary for household reproduction'* (Friedmann, 1998: p.24). These are the bases of social power and *'unless household access to these bases of social power can be improved, poor households will continue to be disempowered; poverty will be perpetuated'* (Friedmann, op. cit.).

Friedmann sees the role of planners, engaged in anti-poverty work, as *'directly involved in improving the access of households to structural bases of social power,'* which usually encompass a triple role by carrying out activities as *community activists, technical experts and political strategists* (Friedmann, 1998: p.25). This is the reason why planners in this field often choose to work *'in local neighbourhoods, attached to both community-based and non-governmental organisations to accomplish their task'* (Friedmann, op. cit.). However, he remarks that *'access to household resources on a societal scale depends to a great extent on provisioning by the state'* (Friedmann, op. cit.). On the basis of local politics and the politics surrounding household resources, he forges a link with the wider field of politics.

His analysis of citizen's rights is based on his observations of recent events which have taken place within different countries. He states that *' the question of citizenship and its attendant rights (and reciprocal duties) has recently been revived in countries as far apart as Brazil, Germany and Australia'* (Friedmann, 1998: p.25). While in Brazil current debates concern *'primarily grassroots participation in political decision making'*, in Germany they are related to *'the status of foreign immigrants in Frankfurt'* (Friedmann, 1998: p.26). In Australia, on the other hand, he connects this debate to *'an official inquiry into the meaning of citizenship'*[14], not only about rights, but also about an *'ethics of responsibility'* (Friedmann, 1998: p.26-27).

## Planning practices and insurgent citizenship

[14] *Parliament of the Commonwealth of Australia* (1995), working paper commissioned by the Parliamentary Committee (quoted in Friedmann, 1998: p.26)

Holston's analysis of planning practices employs an anthropological approach that is a departure from his criticism of the modernist-planning paradigm. His conceptualisation of *spaces of insurgent citizenship* derives from his critical view of the *dominant mode of planning in modern times* (Holston, 1999: p.156) and its resulting urban spaces in contemporary cities.

He regards one of the most urgent problems in planning and architectural theory today as being *'the need to develop a different social imagination'*. He sets this new 'social imagination' in opposition to the modernist model, while at the same time, *'reinventing modernism's activist commitments to the invention of society and the construction of the state'* (Holston, 1999: p. 157). This main idea is then used as the source of his conceptualisation of the relationship between *insurgent spaces* and planning:

*'By insurgent, I mean to emphasise the opposition of these spaces of citizenship to the modernist spaces that physically dominate so many cities today. I also use it to emphasise an opposition to the modernist political project that absorbs citizenship into a plan of state building and that, in the process, generates a certain concept and practice of planning itself. At the heart of this modernist political project is the doctrine – also clearly expressed in the tradition of civil or positivist law – that the state is the only legitimate source of citizenship rights, meanings, and practices. I use the notion of insurgent to refer to new and other sources and to their assertion of legitimacy'* (Holston, 1999: p.157).

Holston notes that central to his conceptualisation of *'spaces of an insurgent citizenship'* is the fact that they *'constitute new forms of the social not yet liquidated by or absorbed into the old'*. In this sense, *'they embody possible alternative futures'* (Holston, 1999: p. 157). However, with regard to the *utopia* of alternative futures, he argues that a fundamental distinction should be made between the modernist mode and insurgent spaces, which he calls the *ethnographic mode*.

He stresses that in the case of the modernist mode *'this ideology of planning is utopian not because it is critical of the present or because it has as its objectives the disruption of taken-for-granted norms'* (Holston, 1999: p. 158). They are characteristics shared in both the modernist and the ethnographic mode. The reason it is utopian *'is because its notion of alternative futures is based on absent causes and its methods on a theory of total decontextualization'*[15] (Holston, op. cit.).

[15] See Holston (1999: p. 158-165) for further discussion of the CIAM version of modernist planning.

His main argument against modernist planning is that it *'attempts to plan without contradictions, without conflict.'* And, for this reason, it does not deal with the *unintended* and the *unexpected* as part of the model, and fails *'to include as constituent elements of planning the conflict, ambiguity, and indeterminacy characteristic of social life'* (Holston, op. cit.).

The main question to be addressed is – *how to include the possibilities for change encountered in existing social conditions (the ethnographic present) in planning.* Holston recommends thinking about *'a new production of the city'*, which leads him to the following hypothesis – *'if modernist planning relies on and builds up the state, then its necessary counteragent is a mode of planning that addresses the formations of insurgent citizenship'* (Holston, 1999: p. 167).

Planning theory needs to be grounded on these two conflicting positions. First, there is the project of *state-directed futures* that he argues can be transformative, but which *'is always a product of specific politics'* and second the project of *'engaging planners with the insurgent forms of the social'* (Holston, 1999: p. 167). He claims that these insurgent forms both derive from and transform the first project. Yet these insurgent forms are in important ways, *'heterogeneous and outside the state'*. Furthermore, they are found in both *'grassroots mobilisations'* and in *'everyday practices'* or, in more general terms, whenever citizenship is in question (Holston, op. cit.).

Holston discusses citizenship as a dynamic concept, arguing that *'citizenship has never been a static identity'* (Holston, 1999: p. 167). The study of these dynamics is the theoretical objective of a form of planning linked to insurgent forms of the social. As a methodological contribution to this task, he suggests making a distinction between *formal* and *substantive citizenship.*[16] His view is that this distinction may help to identify *'how the forms of insurgent citizenship appear as social practice'* and, therefore, how they may be studied. Hence, formal citizenship refers to *'membership in a political community'* (the nation-state in modern history), while substantive

[16] *'As new kinds of residents occupied cities – southern blacks in Chicago, Turks in Frankfurt, Nordestinos in Sao Paulo, Candangos in Brasilia – these formal and substantive conditions shape their urban experience. In turn, this experience becomes a principal focus of their struggle to redefine those conditions of belonging to society'* (Holston, 1999: p.168).

citizenship relates to *'the array of civil, political, and social rights available to people'* (Holston, 1999: p. 168).

Holston's view provides the precise locus for planning. In his view, the challenge for planners lies in the following impasse:

*'If planning theory can conceptualise this collision between citizenship and these insurgent alternatives, planning practice can respond to this articulation first by expressing its heterogeneity – the social condition we actually live – and then by developing some of the ethnographic possibilities that are, by definition, embedded in heterogeneous conditions'* (Holston, 1999: p.169).

Holston suggests there is a link between the expansion and erosion of citizenship and the constitution of an *insurgent urbanism* (Friedmann, 1989 and 1999) which occurs in two interrelated ways. It is effected first, by locating the debate about basic *social relations* on a city scale, and hence being able to assess *'the role of conflict and ambiguity in shaping the multiplicity of urban life'*. Second, this *'very heterogeneity working against the modernist absorption of citizenship'*, provides new *'possible sources for the development of new kinds of practice and narratives about belonging to and participating in society'* (Holston, 1999: p. 171).

In his analysis, Holston addresses the issue of spaces of insurgent citizenship in Brazilian cities, from the perspective of urban spatiality. He provides some brief examples from his previous analysis of the case of Brasilia, focusing mainly on the struggles within squatter settlements.[17] At the same time, he adds some examples taken from Caldeira's essay[18] in the case of Sao Paulo[19], especially in connection with housing struggles as well.

Sandercock and Friedmann draw on Holston's concept in their respective analyses of the dilemmas of planning practices address the issue of insurgent citizenship in the Latin American contemporary experience. They both cite the case of Porto Alegre as a particular example of insurgent citizenship and a successful experience of grassroots participation in political decision-making.

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[17] *Vila Chaparral*, Brasilia. (Holston, 1999: p.163)
[18] See Caldeira, Teresa (1999) as referred to in Holston (1999: p.114-138).
[19] *Morumbi*'s new urbanism of closed condominiums and *Jardim das Camelias'* working-class urban periphery. Holston (1999: p.164-165)

Friedmann instances the case of Porto Alegre[20] as a practical example of the new meaning of citizenship. He regards the experience from a political viewpoint as an experiment in local democracy and claims that *'it is having practical outcomes that actually favour the so-called popular sectors for the first time in the country's history'*. He adds that, although this is possibly the most successful experiment in local democracy in Brazil, it is *'far from being the only one'* (Friedmann, 1998: p.4).

Sandercock likewise analyses the *dilemmas of difference* and the *multicultural forms* in which cities are turning. Her evaluation of Porto Alegre's experience, which is also based on Abers' (1997, 1998) narrative, is that *'what begins as an insurgent social movement wins power at local level and sets about implementing a transformative politics based on the importance of popular participation, government transparency, and just distribution of resources'* (Sandercock, 1998: p.148). She thus argues that this experience exemplifies *'the benefits that can flow from an insurgent political/planning movement, which wins state power and uses it to pursue a transformative politics of democratisation, inclusivity, and distributive justice'* (Sandercock, 1998: p.151).

The analytical perspectives of the three authors share an understanding that a new form of planning practice is being shaped in our societies on a local scale. What these experiences have in common, despite their historical/geographical peculiarities, is the fact that they are based on insurgent practices and grounded in the dynamic conditions of citizenship within contemporary democracies. We may say, borrowing Holston's expression, that these experiences encompass the *ethnically possible*, by means of planners are able to derive the raw material for the development of a new 'imagination' in planning and architecture.

### 2.2.3 Planning: insurgent practices and planning cognition

The analysis above identified a radical paradigmatic shift within the theories of planning, which have been strengthened through a number of experiences of insurgent practices in contemporary cities in recent decades. These practices represent new planning possibilities but are far from being dominant among the models of planning in our contemporary cities.

[20] See Abers (1997 and 1998) as referred to by Friedmann (1998: p.4).

The paradigmatic shift has come about because for the first time in the last five decades, planners are re-thinking their role; they are no longer the key actors, but have been relegated to playing a supporting role in the planning process that is aiming at social change. The organised forces of civil society and insurgent citizenship are attempting to take control as the main social actors within the planning process. In this way, they are challenging power relations at local levels of political decision making within the sphere of the state.

The main theoretical question to be addressed next is – what are the objectives and methods that need to be addressed to inform this new kind of planning? Our analysis of these new methods of planning focuses on the three complementary theoretical approaches of radical planning discussed above. They share an epistemological position in relation to urban inequalities and the role of planners. To use Sandercock's expression, they are searching for *new ways of knowing and being* as well as ways *of acting* within the planning sphere.

### Ethnographic approach

The ethnographic approach to planning is outlined by Holston (1999) and derives from his criticism of the modernist planning paradigm. He argues that this approach might help planners to solve the paradox of engaging with the insurgent forms of 'the social', while taking into account the resources of the state:

*'Above all, planning needs to encourage a complementary antagonism between these two engagements. It needs to operate simultaneously in two theatres, so to speak, maintaining a productive tension between the apparatus of state-directed futures and the investigation of insurgent forms of the social embedded in the present'* (Holston, 1999: p.172).

With regard to method, he suggests there is a need to *'emphasise those of an urban ethnographer – or a detective'*. They entail two sets of methods. The first is used in *'tracing, observing, decoding, and tagging'* the objects of the investigation. The second is a method of *'reconstructing, identifying, presenting, and re-articulating'* to be used later. He says that *'both the tracing and the reconstruction compose this engagement with the ethnographic present'* (Holston, 1999: p.172). He acknowledges that this method of investigation derives from his anthropological background commenting that he is not suggesting that architects and planners become

anthropologists, but rather that they learn the methods of ethnographic detection and also learn to work with anthropologists.

The main objective of this approach can be defined as the need to understand social heterogeneity: *'to understand society's multiplicity is to learn to read the social against the grain of its typical formation'* (Holston, 1999: p.172). He claims that this approach requires *'expanding the idea of planning and architecture beyond this preoccupation with execution and design.'* Hence, he suggests that *'to plan the possible is to begin from an ethnographic conception of the social and its spaces of insurgence'* (Holston, 1999: p.172-173).

**Post-Euclidean approach**

The *post-Euclidean* approach for planning is defined by Friedmann (1998: p.29) as being opposed to the old *Euclidean tradition* (modernist).[21] Within this approach cities are defined as complex structures that can no longer be understood from a single perspective.

Friedmann suggests that despite the emerging reality, which reflects a *sea-change in their field of work*, planners are not being prepared with the appropriate methods for a *transactive style* of working. He points out that planners working within the civil society dimension need, at least, to be accepted by the communities which they work for. In order to achieve this, they *'must also learn the "languages" of others in our multicultural metropolis'* (Friedmann, 1998: p.32).

In a post-Euclidean approach, working with civil society entails having a clear idea of a cause or causes for such commitments. In Friedmann's view, this cause is related to the will to create a democracy at a local level, a democracy that *'values difference with social justice'* (Friedmann, 1998: p.33-34). On this basis, he argues that the politics of civil society is emancipatory in a double sense, in the sphere of *autonomy* and *political empowerment* as well. He regards *autonomy* as being in the sphere of the workings of the *moral economy* that encourages active *engagement* and *self-management* within

[21] See Friedmann (1993) for further debate on the Euclidean tradition.

local organisations and, a *'resistance to the commodification of life'*, regarding cooperative practices (Friedmann, op. cit.).

He stresses that political *empowerment*, implies a *'turn from the essentially private concerns of civil society to the sphere of political community'* (Friedmann, 1998: p.34). He thinks the struggles for *inclusion* and opportunities of *self-development* lie within this sphere, together with forms of *social justice* that recognise that there are differences between the *'different priorities and needs of the different groups'* (Friedmann, op. cit.).

Friedmann's post-Euclidean approach envisages a political project that involves urban planners in *'a transformative politics for inclusion, opportunity for self-development and social justice'*. Moreover *'it is a politics driven by the energies of a civil society that is beginning to reassert itself in all of its diversity'* (Friedmann, 1998: p. 34-35). His propositions have inspired a good deal of rethinking and self-examination among radical planners who share the same goals within planning practices in the urban context.

**Multicultural approach**

Sandercock's *multicultural* approach adds the perspective of a *social project of planning practices* that attaches importance to the cultural dimension of urban diversity, in which *'difference can flourish'* (Sandercock, 1998: p.206). Her main argument centres on the link between the *multicultural forms* of postmodern cities and the *dilemmas of difference.* She argues there has been a demographic restructuring taking placing in recent decades which has run parallel with the phenomenon of the economic restructuring of global cities. The material expression of the interrelation of these two phenomena is turning cities into new multicultural forms. Their cultural, social and spatial manifestations challenge the current ways of thinking about the planning profession as well as the planners' ideas about urban governance and urban politics.

She advocates the idea that the *'rise of multiculturalism as a political force'* signals the failure of the modernist project. Her utopian vision of the future of the cities involves

the construction of a *'democratic cultural pluralism'*. She claims that, the *pillars of modernist planning*[22] must be destroyed and replaced by new principles of *social justice, difference, citizenship, community* and *civic culture* in order to face the dilemmas of difference and to create this new order. (Sandercock, 1998: p.182-200)

Sandercock supplies evidence that a paradigmatic shift is already taking place within planning practices, and is being constituted as a *new radical praxis for planning*. Her definition of new emergent planning practices is based on the analysis of seven practical experiences of what she calls *'a thousand tiny empowerments'* (Sandercock, 1998: p.154).[23] She explains that *'these are stories of people and organisations and agencies who are practising radical, democratic, and multicultural planning, in the interstices of power, sometimes in the face of power, and sometimes (although less often) from positions of power'* (Sandercock, 1998: p.129).

This new planning paradigm not only focuses on new objectives for planning, but requires new methods of planning as well. Sandercock maintains that the novelty of this style is that it requires *'a familiarity with the life ways of communities'* and, at the same time, *'new kinds of cultural and political literacy'* (Sandercock, 1998: p.129). It includes new ways of knowing, in addition to the scientific and technical knowledge that has always been the profession's bread and butter. She suggests that planners engaged in this praxis must address a central question – *'what counts as knowledge and who counts as a knower?'* (Sandercock, 1998: p.216)

There is no straightforward answer to this leading question. Planners need to take into account that *'all knowledge is embodied, historically situated, shaped by language and embedded in power relations'* (Sandercock, 1998: p.217). Consequently, this new approach relies on *'context-specific negotiation'*. Planners engaged in this new praxis should draw on many ways of knowing and, at the same time, develop the ability to decide which way of knowing is most useful for a particular set of circumstances (Sandercock, op. cit.). She draws up a list of at least *six different ways of knowing* (Sandercock, 1998: p.76-83) that must be added to the traditional scientific and technical knowledge of planners.

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[22] *'(...) rationality, comprehensiveness, scientific objectivity, the project of state-directed futures, and the notion of public interest'* (Sandercock, 1998: p.4-5).

[23] Here she discusses the experience of *Popular Participation* in Porto Alegre – *The Peoples' Budget.*

Sandercock also suggests the need for a theoretical restructuring within planning and she says that the main theoretical question to be addressed is as follows – *can planners develop a theory and practice, which acknowledge and respect diversity and difference?* (Sandercock, 1998: p.124)

She adopts an optimistic approach with regard to the role of planners. This is opponent in her project for social planning practices, although she believes that there are many possible answers to this central question. Her answer envisages designing this social project for planning practices and it is also her utopian dream of a *Cosmopolis.* (Sandercock, 1998: p.203-219)

This brief overview of the paradigmatic re-thinking of planning practices and theories demonstrates that this is an unfolding story in the history of the planners' profession. We believe that planning is a profession embedded in political action in the urban sphere and planning practices comprise a dynamic and ceaseless process of learning, through an interaction with the flux of social change. It is, therefore, no surprise that in a context of intense social restructuring, planners are again facing the need for a paradigmatic re-thinking of the profession as a whole.

The authors share considered agree that what is missing in studies of social relations in planning practices, is the question of power relations within the political sphere and the role of the State vis-à-vis the disempowered segments of civil society. They all stress how civil society is re-organising itself through new insurgent forms of citizenship so as to face the struggle for citizen's rights and social justice, within the complex urban systems. Hence, they believe that the new knowledge which results from these new forms of insurgent citizenship within planning practices, should be added to the traditional scientific and technical knowledge of the planners. What remains an open question is how to achieve this.

Our view is that the present restructuring of society is not only about the transformation of power relations in a new phase of capitalist expansion. It is essentially about the transformation of power relations brought about by the impact of the technological revolution. Hence, we agree with Castells that access to information and the ability to transform this information into knowledge, are the central questions

which have to be addressed to redefine social power relations. The issue of building new planning knowledge is not only about digesting new forms of knowledge which have been derived from social practices. As well as this, there is a need to construct a new planning knowledge, based on a new paradigm of knowledge-building and resulting from the intersection of the social practices embedded in the new informational social structure.

This implies that some further questions remain to be addressed within this theoretical framework, including – how the information technology revolution paradigm is having an impact on the present critical re-thinking of planners' theories; how these new technological resources are being incorporated within new social planning practices; and to what extent they are helping to construct a new planning knowledge.

## 2.3 Advanced Information Technologies and Participatory Planning

In this section the focus is on the relationship between participatory planning and the use of advanced information technologies, from the perspective of the interaction between the culture of real virtuality and informational space. Our purpose is to discuss how planners might be able to set up new planning practices within this new informational environment and thus construct new planning knowledge, aimed at social change.

We examine participatory practices in relation to two recent phenomena (a) the rise of virtual cities and the rise of virtual communities (b) emergent experiences of insurgent practices within virtual environments, and how these might inform a paradigmatic shift in planning cognition.

### 2.3.1 Participatory Planning and Virtual Environments: virtual cities and virtual communities

We are now in a position to attempt to link participatory planning with the emergence of these new virtual environments. This gives rise to a number of theoretical questions which need addressing such as: how are computer-mediate communication networks

changing the ways planners either function or theorise their practice and is there a role for participatory planning within virtual environments?

## Advanced information technology and planning practices

For the purposes of the present analysis, it is worth making a methodological distinction to clarify a basic question - what is the analytical object in the interrelationship between advanced information technologies and planning practices?

Our epistemological position follows Batty's view of computation as being a *'two-way traffic'* (Batty, 1997:p.339-340). Hence, the use of cyberspatial technology is not only changing the ways urban planners do their work, but also changing their own understanding of their aims and theories (developing ties between cities and citizens). It also influences their vision of the work that has to be done.

By pursuing this path, it is possible to make a theoretical case that the development of *cyberspace* (Kitchin, 1998: p.26-53) has created an opportunity to build new forms of planning practices within the network society. Our view is that, participatory planning, understood in its simplest form, as a process of political decision making based on interactive communication between politicians, policy-makers, planners and citizens, has the potential to be represented in cyberspace, as much as any other type of human interaction (Batty, 1997).

Our aim is to approach the analysis of the interrelation, between planning practices and information environments, by taking into account two different, but complementary, dimensions of virtual environments that were examined in Chapter 1. The first concerns planning practices within the sphere of *cspace* and focuses on the interrelationship between the spatial theories that have been supporting the representation of urban space inside computers and on the parallel development of technologies that allow this representation. The second dimension explores the evidence of emergent planning practices within cyberspace, and sets out the paradigmatic challenges of planning theories and praxis in relation to the main technological innovations underway.

Our main concern is on how information technology might improve the technical and scientific aspects of problem-solving in urban planning processes but more importantly, on how it might support informed decision-making processes within planning practices and thereby heighten the extent to which citizen participation is empowered. Yet it must be acknowledged that these are interdependent domains within the participatory processes of urban planning.

It should be stressed that it is far beyond the limits of this framework to attempt a historical overview of the technological development of computation as applied to urban planning. Our objective is far less ambitious. It is to establish the links, from different epistemological positions, rather than fully address the technical and scientific specificity of the field of computation in relation to planning practices.

Our central concern is with examining the social/spatial dimension of planning practices. Hence, the focus of this study is mainly on computation as applied to the representation of social/ spatial relations - the field described as computable geography (Batty, 1997) and the field of theoretical planning praxis (Sandercock, 1998).

**- planning practices in cspace**

The use of information technology has been traditionally confined to the analytical phase of the planning process. Thus, it has been associated with the development of a scientific approach for planning practices, rather than political processes of public participation. It is not surprising that there has been a lack of academic concern over the use of information technologies in participatory planning practices, given that there has been considerable discussion by the community of planners who advocate a more radical praxis.[24]

The causes of this lack of concern can be illustrated on two axes. First, it is related to different analytical positions regarding current changes in society. Authors attach different degrees of importance to the impact of the informational paradigm on the constitution of a new informational society.[25] On the other hand, the technical aspects

[24] See section 2.2.
[25] See Chapter 1:section 1.2.

of the use of information technology itself have separated the academic community of urban theoreticians and analysts, as well as planners at large. This divide tends to polarise two antagonists: planners and academics who see themselves either as computer literate or computer illiterate.[26]

In our view, one can identify a similar pattern of convergence in the parallel development of computation and the use of information technology in planning practices. In recent decades, they have both evolved from the traditional top-down models, into contemporary, more decentralised, bottom-up models. In the case of urban planning practices, this has occurred from top-down models of land-use control over socio-economic urban activities, through information systems of spatial representation of the geography of cities and land uses, into more democratic experiences of decentralised city planning and management, including extended and more complex socio-economic and political relationships. (Hall, 1988: p.334)

Batty and Densham comment on the changes in the links between computation and planning practices. They state that *'the top-down approach based on remote, large-scale, database computing has been replaced by a much more personal computing style in which graphical display or urban data now provides the focus'* (Batty & Densham, 1996: p.2). They argue that the introduction of this *bottom up style* is also a consequence of changes in computing, such as the invention of the microprocessor, miniaturisation and personalisation, together with the fall of memory costs that allow the inclusion of a growing number of applications involving graphic computing (Batty & Densham, op. cit.).

In the last decade, the computer revolution has meant that the development of applications has become ever more graphic. Among these developments, Batty singles out the growing role of GIS (Martin, 1996), that represents *'a current obsession'*, while *'ever more qualitative data in the form of pictures have being processed digitally through remote sensor and alike'* (Batty, 1997: p.342).

[26] Sandercock for instance states in the first line of the preface of her last book: *'This book was written without a research grant, by a writer who is barely computer literate'* (Sandercock, 1998).

Planning practices, in their turn, have been changing from the *rational comprehensive model,* to use Sandercock's terminology, of the post world-war period, into a wide range of new approaches, which are more concerned with *communicative rationality* than *instrumental rationality.*[27] As a result, in a way which runs parallel to computable geography and the development of cspace, spatial planners have switched from the early uses of mainframe computers, such as extended calculators, to a new medium in which it is now possible both to manipulate and conceive socio-spatial theory.[28] However, Batty maintains that only very recently have computers been regarded as more than just tools or a simple means for improved understanding, and computation more than simply scientific analysis (Batty, 1995b).

It was only recently, when planning theories became more heterogeneous and widespread and, the modernist paradigm in urban planning began to be questioned, that the parallel development of computer graphics, distributed processing, and network communications allowed top-down planning models within the academic sphere to be questioned. This led to a theoretical re-thinking of the modernist paradigm and opened up planning knowledge, through the inter-play of multiple views, interpretation and representation of urban space and the prospect of including different perspectives on a number of different scales.

The last twenty years have witnessed a wide change and development of computer-based spatial information systems, as a result of scientific research and the growth of GIS technologies. Two major developments in computation have contributed to these changes. First, the development of multimedia systems and subsequently, their convergence with network communication technologies.

These major innovations have had an impact on the development of geographical information systems (GIS), and on the ways computers are being accessed and display their results, which are now largely graphic. As a result, there has been *'a sea change in the way computers are being applied in planning',* in recent years (Batty & Densham, 1996: p.2).

[27] See sub-section 2.2.2.
[28] See Chapter 1: section 1.4.

The same types of changes can be identified in the development of GIS, which in the last 10 years has shifted its emphasis to *'graphic display'*, the *'representation of spatial data'*, and its *'manipulation in quite straightforward ways.'* On the other hand, Batty and Densham state that in relation to *'planning and problem-solving processes, to date, there has been very little emphasis on formal analysis, simulation and modelling and hardly any at all on design and decision-making aids'* (Batty & Densham, 1996: p.2). Yet they go on to point out that the development of computer technology is changing and that there are prospects of seeing *'much greater emphasis on informal decision-making using computers interactively through networks based on decentralised interaction between users'*, in the next 10 years (Batty & Densham, op. cit.).

Academic investigation into spatial analysis and computer technology, as well as new applications for urban planning within cspace, has grown fast in the last decade, and there have been some major academic initiatives worldwide.[29] (Batty & Densham, 1996: p.8) The range of academic research on GIS applications is wide and an interdisciplinary approach has come about in the academic sphere. Yet, a cursory review of the current topics of research in this field during the last few years, reveals the tendency earlier identified by Batty and Densham.[30]

**- planning practices in cyberspace**

In our examination of the debate of cyberspace and the information society, it was argued that cyberspace is changing our social, cultural, political and economic lives. Furthermore, it was stated that cyberspace has *'a fundamental different structure to the physical structures that currently organise everyday life'* (Kitchin, 1998: p.12). Hence, it seems reasonable to hypothesise that, although still in its early stages of development, cyberspace is increasingly changing urban planning practices, as well as our own conception of urbanity.

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[29] See also: http://www.ncgia.ucsb.edu for a further examination of the NCGIA academic research program and, http://www.casa.ucl.ac.uk for a further examination of the CASA academic research program.

[30] Op. Cit.(29)
See also Michael Shiffer's (1992 and 1995) or at: http://gis.mit.edu/people/mshiffer/ on collaborative spatial decision-making

A basic question to be addressed, if we wish to identify the evidence of this ongoing process of change and further examine its interrelation with planning practices, concerns the fundamental nature of cyberspace structure. The theoretical questions to be addressed next are - how does this structure differ from the physical structures of everyday life, that have been the bread and butter of planning practices for the last 50 years? What constitute the main systems through which this structure operates?

To address these questions, cyberspace needs to be examined on a micro scale. This is a departure from the epistemological position that technology is both a socio-cultural and political-economic construction in a broad sense, while at the same time, being generated socially and mediated through culture on a micro scale. Hence, this micro scale is the arena for a debate concerning planning practices in cyberspace.

Our hypothesis is that there is a convergence between the development of the communicative or collaborative approach to spatial planning and the development of cyberspatial technologies. This implies that there is a paradigmatic challenge common to both fields, computation and urban planning practices. The first concerns the new communication paradigm, while the second is related to the paradigmatic shift in knowledge-building throughout the cyberspatial technologies.

Due to the given changing nature of cyberspace, it is difficult to assess its full potential or to try to examine the latest technological achievements, as they are constantly evolving. For an assessment of the link between this process and planning practices, to support our empirical investigation, it is necessary to examine in more detail, the current benchmarks of technological developments regarding two essential domains of cyberspace[31] - the Internet and virtual reality.[32]

Our main theoretical and exploratory argument about the uses of advanced computer technologies for participatory planning is that the convergence of computers and communications might represent a major breakthrough when facing the historical challenge of the planning praxis/theory dichotomy. The reason is that planning

[31] Kitchin's (1998: p.2-8) definition divided cyberspace into three domains: the *Internet, intranets* and *virtual reality'*. Our analysis focuses only on the public domains of cyberspace - the Internet and virtual reality.
[32] See Kitchen (1998: Chapter 2, p.26-53) for an overview of the historical development and growth of cyberspace, the Internet and virtual reality.

information can now be actively manipulated within the digital environment, and also because this information can be communicated and exchanged throughout the local and global networks. This might enable planners and citizens to set up new means of interactive communication and a dynamic exchange of planning experiences that could help in the process of constructing new collective forms of planning knowledge.

Traditional ways of using information technology within institutionalised planning need to be overcome in order to explore further the potential of this new medium (Rizzi, 1999: p.147). This implies that there is a need for a radical change in both planning practices and the kind of planning theory that informs these practices.[33]

It is now necessary to examine this dual paradigmatic challenge towards new forms of participatory planning regarding both objectives and methods. The discussion of objectives has a bearing on the challenges to the rational, comprehensive, dominant model of planning. The question of method, or praxis, includes the examination of cyberspace technologies in the context of these new planning practices.

In Kitchin's definition, *'the Internet is a vast collection of computers linked to networks within larger networks spanning the globe - huge anarchic, self-organising and relatively unpoliced system which allows unlimited access to the people connected, and the information stored on public databases and computer sites'* (Kitchin, 1998: p. 2-3). He thus maintains that the Internet *'is not one networked space but consists of several separate but interconnected network spaces (each consisting of thousands of individual networks), all linked through common communication protocols (ways of exchanging information)'* (Kitchin, op. cit.).

Access to these network spaces, and then to the rest of the Internet, can be obtained by anyone with a computer, a modem and a telephone line. Although access is open to anyone, this is not the case in practice, as it implies major social, cultural and economic constraints these were earlier referred to as *social inequality* in the electronic domain.[34]

[33] See sub-section 2.2.3.
[34] See Chapter 1: sub-section 1.3.3.

When discussing the level of interaction that the Internet provides at present, Kitchin notes that:

*'At present the Internet offers users a range of interactions allowing them to explore the world beyond their home. User can browse information stored on other computers, exchange electronic mail, participate in discussion groups on a variety of topics, transfer files, search databases, take part in real-time conference and games, and run software on distant computers'* (Kitchin, 1998: p.3).

The most commonly used cyberspatial facility is perhaps the transfer of *e-mail,* as it allows people to send messages to each other via the computer. Two other mail facilities within cyberspace are *mailing lists* and *bulletin boards.* Mailing lists are *'centralised, and in some cases monitored, forums for allowing a number of individuals to converse and swap information via e-mail on specific topics'* (Kitchen, 1998: p.3). Another alternative is having bulletin boards that comprise *'centralised facilities that allow user to employ a number of functions'*, such as *'access to newslists*[35] *and chat facilities and the ability to connect to, and to download information from other boards'* (Kitchen, 1998: p.3).

The WWW *'consists of multimedia data (mostly text and graphics) which is stored as hypertext documents (documents that contain links to other pages of information)'* (Kitchin, 1998: p.5). For this reason, the use of a browsing program *'allow users to connect to a computer server and to explore and interact with the information stored there'* (Kitchin, op. cit.). Kitchin adds that it was the introduction of JAVA script that made it possible to run and download programs across the web. Furthermore, he points out that *'companies are now also using the web as broadcast medium, channelling radio and television pictures direct to the host* machine' (Kitchin, 1998: p.7).

At present some Internet services also allow *'real-time interaction with other people rather than stored information'*, i.e. *chat* facilities that allow a number of users *'to converse via the computer in much the same way as face-to-face conversation might develop'* (Kitchin, 1998: p.7). These conversations can also take place within textual virtual environments such as *'MUDs (multiple user domains; also know as MUSEs (multiple user social environments), MUSHes (multiple user social hosts) and MOOs (multiple object-oriented))'* (Kitchin, op. cit.). Kitchin states that these environments *'provide a themed context for the interactions between people'.* While the differences

between them *'are mainly concerned with how each is programmed and the sort of interaction achievable in each'* (Kitchin, op. cit.).

Turning to virtual reality technologies, Kitchin's approach suggests that they allow users to become either partially or totally immersed in *'an interactive, visual, artificial, computer-generated environment'* (Kitchin, 1998: p.8). The basic difference in the kind of interaction, now possible through these technologies is that *'instead of the users being spectators of a static screen, they are participants in an environment that responds'* (Kitchin, op. cit.).

He also mentions that the merging of virtual reality technologies with the Internet is a recent phenomenon that has opened up a range of new possibilities for uses and new applications of this technology. He adds that this convergence of technologies is already taking place very rapidly. He points out that *'in recent years, experimental virtual reality sites using VRML*[36] *programming have been appearing on the web, allowing people to run virtual reality simulations via the Internet and also to take part in virtual reality MUDs'* (Kitchin, 1998: p.8).

However, he points out that virtual reality technologies *'are not as advanced in development, or in number of users as the Internet'*, and suggests that the reasons for this lie in the development costs. He states that although it is *'anticipated that the merger with the Internet and other technologies such as high definition television (HDTV)'* will significantly further its development, *'it will probably be another 10-20 years before immersive VR technologies become as advanced as the Internet'* (Kitchin, 1998: p.52-53). Yet, he mentions that it is already possible to *'see the start of such merger with the increasing prevalence of virtual reality web sites that allow user to interact with a 'game space''* (Kitchin, 1998: p.53).

Hence, there has been a fundamental conceptual shift in the development of virtual reality technologies and their merger with the Internet and this has been an intrinsic feature since the origins of virtual reality technology. Within this perspective, it is believed that *'the computer is designed to accommodate human needs and abilities,*

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[35] See Kitchin (1998: p.5)
[36] See Smith, Dodge, and Doyle (1998: p. 4) for further definition.

*rather then shaping human behaviour and skills to the computer'* (Kitchin, 1998: p. 46).

From the perspective of urban planning and participatory practices, the development of virtual reality (VR) technology and its merging with the Internet represents a fundamental paradigmatic shift within cyberspatial technologies. This is related to recent developments in virtual reality systems that allow the building of new kinds of virtual environments within the Internet, where users' participation is a central feature. Although these technologies are still on experimental stage, a clear tendency can be identified which focuses on the active interrelation between the digital environment and the users (Batty, Dodge, Doyle & Smith, 1998).

Batty and his research associates define virtual environments in a general sense as *'digital simulations of situations, real or fictional, in which users are able to participate'* (Batty, Dodge, Doyle & Smith, 1998: p.1). They go on to claim that:

*'Participation and the way it is achieved are the key components which make the environment virtual, and it generally agreed that such participation must be engendered so that the users are able to feel that they are present within the environment and are able to interact with the simulation if only by navigating and moving with the scene'* (Batty, Dodge, Doyle & Smith, op. cit.).

These authors maintain that research into modelling virtual urban environments is accelerating. However, some cyberspatial technologies, *'particularly those of linking different media and of displaying this media remotely'*, have only just started to become available across the Web (Batty, Dodge, Doyle & Smith, 1998: p. 28).

Yet they point out that these are challenges to building interactive virtual urban environments for multiple users which are linked to computation:

*'The single user interface which has dominated computation to date has always been left in the hands of the users and rarely do software designers tailor their designs to questions of human performance and problem-solving behaviour. Now that computation is beginning to involve multiple users, such research into the human-computer interface takes on a new urgency'* (Batty, Dodge, Doyle & Smith, 1998: p. 28).

At present, there are numerous ways of using this range of cyberspatial technologies for building and visualising digital environments across the Web. These environments

can be applied to the study, planning and simulation of the processes that affect the physical urban environment.[37] However, what we are seeking within this framework is the convergence of cyberspatial technologies and new participatory planning practices, which are related to the use of virtual environments as communication and social learning devices.

## Towards virtual cities and virtual communities

The growing and pervasive expansion of the Internet in recent years has paralleled the development of virtual environments that operate as electronic analogies of real cities (Graham & Aurigi, 1997: 24).[38] These electronic analogies of cities are termed *virtual cities.*[39] They do not exist in physical terms, in real geographical space, but they do exist within cyberspace (Batty, 1998: p.3-4).

The academic debate on virtual cities includes the interrelationship between the virtual and the real cities that host them. Consequently, it relates to the impact of information technology on cities, as well as the constitution of informational space in which people interact with other people and develop activities by manipulating information. When the information is about real things, or rather real cities, it might originate virtual cities that operate as electronic analogies of cities. From this perspective, these virtual cities can be analysed as the local expression of the global informational process that might well embody a new *cyberspatial arena*, where people's interactions involve a power struggle aimed at social change. These kinds of virtual cities can thus be investigated by considering the local/global scales that are bound up with this phenomenon.

Our objective is to approach this interrelation by considering both scales. On a global scale, the focus is on the interrelation between the process of sociospatial polarisation in real cities and its mirror image within virtual environments. On a local scale, consideration is given to the interrelation between planning practices and local government experiments within virtual cities, in order to examine its potential to work

[37] See CASA Working Papers Series 1 (Batty, Dodge, Doyle & Smith, 1998), 2 (Smith, Dodge & Doyle, 1998) and 3 (Batty, Dodge, Jiang & Smith, 1998); or their Web site (op. cit. 29)
[38] See Graham and Marvin (1996: p.313-336) for practical experiments.
[39] Also described as: *soft or cyber-city* (Kitchin, 1998: p. 152-157), *Web cities* (Graham & Aurigi, 1997) or, more commonly *digital cities* (Batty, 1998).

against the systematic social and spatial bias of the Internet and the information process, on a global scale (Graham & Aurigi, 1997).

**- sociospatial polarisation**

Two lines of arguments need to be considered together with the central issue of cyberspatial access and exclusion. The first is related to the question of sociospatial polarisation and the impact of computer-based communication technologies on cities. The second refers to urban governance. This focuses on the role of local governments and raises the question as to whether or not they can provide the necessary social and electronic infrastructure to ensure universal access to cyberspace at a local level.

Graham and Marvin[40] note that a simultaneous process of fragmentation and polarisation is taking place in informational cities:

*'Clearly, the city is being redefined and redrawn in both physical and electronic space. In the informational city the boundaries between home and work, public and private, electronic and physical are becoming increasingly blurred. Telecommunications do not simply substitute or displace space - they redefine how space is perceived, used and controlled. Crucially, they facilitate increasing control over space for powerful groups while creating new physical and electronic ghettos for marginal, low-income and disenfranchised households. The city becomes much more fragmented and polarised as physical and electronic space is used in new ways. Rather than seeing the 'end' of the city, these processes create a complex new patchwork of different types of spaces - some real others configured electronically'* (Graham and Marvin, 1996: p.336).

Castells adopts the same analytical perspective: when, in referring to the networking logic of the space of flows, he states that - *'the space of flows links up valued spaces at the same time that it separates and isolates devalued spaces'* (Castells, 1999: p.31). He underlines the fact that, from the standpoint of the system logic, *'there is a self-reinforcing process of spatial marginalization, social exclusion, and functional devaluation in these neglected places, which the information highways of the space of flows have bypassed'* (Castells, op. cit.). This key feature of the networking logic introduces the question of *revitalising local government* into this debate. Castells argues that *'local governments[41] world wide are being decisive in improving urban living conditions'* (Castells, 1999: p.31-38).

[40] See Graham and Marvin (1996) for the complex interrelation between cities and telecommunications.
[41] See Castells (1997) for further analysis of the role of local governments.

Castells claims that local governments can take advantage of information technology as a tool to achieve higher levels of information and connectivity that might allow it to offset its limited political power and financial resources. He maintains that *'when linking up with citizen groups and business partnerships, local governments, under the right political conditions, may become key public entrepreneurs, altering the conditions under which poor communities sink into oblivion'* (Castells, 1999: p.38).

He argues that local governments could act to strengthen the link between the space of flows and the space of places. He suggests that *'the current powerlessness of localities vis-à-vis the variable geometry of corporations may be reversed, as networks of local communities gradually take up the role of declining national governments in re-establishing social control over the conditions of economic development'* (Castells, 1999: p.39). While acknowledging that this kind of process is complex, he claims that many initiatives are already taking place in cities around the world. At the same time, he argues that this is essentially a political project. It consists of what he describes as *'the politics of dreams'*, a way to *'invent, calculate, think, fight and work to turn the extraordinary opportunity of information technology into the promise of a more humane society, based not on social exclusion but on shared creativity'* (Castells, op. cit.).

Graham and Marvin adopt a parallel approach, while focusing on urban policy and governance, when they state that *'the uses to which telematics are put by urban planners, managers and governors are open to social political construction'* (Graham and Marvin, 1996: p.373).

In assessing recent experiences[42], however, they stress the many problems confronting these urban policies, where initiatives are still in their early stages. They argue that in some cases, telematics are being used *'as support for privatisation, reducing social services, and enhancing the degree of surveillance and control that dominant institutions have over the socially powerless'* (Graham and Marvin, 1996: p.373).

In contrast, they observe that *'much promising policy innovation and exploration is emerging in which genuine social telematic innovation in cities is producing real*

[42] See Graham and Marvin (1996: p.338-374), for further analysis on urban policies and telecommunications.

*benefits'* (Graham and Marvin, 1996: p.373). Yet they claim that the embryonic nature and diversity of urban policy innovations *'make it difficult to estimate the broader significance of these policies and their possible effects'* (Graham and Marvin, op. cit.). Hence, the main question is how urban politics can be reformed so that it can combat the growing unevenness and fragmentation of urban, social and economic life.

The conceptual debate shows that, these authors share a common outlook about the scope these technologies have for opposing the bias of globalization, fragmentation and polarisation at a local level. This potential stems from two unique characteristics of computer-based communication technology, namely - their interactive potential and the decentralised nature of the network structure. However, these authors also maintain that this kind of technological potential can only be realised proactively if it is engaged with a political project that embodies the social construction of the political, economic and technological conditions required to ensure universal access at a local level.

These pre-conditions for undertaking technological innovations in a comprehensive way are connected with the required paradigmatic shift towards a radical planning praxis. Participatory planning under such conditions might involve innovative practices to link up citizens and urban policy-makers in this struggle at a local level. Hence, the spontaneous development of *virtual* communities within cyberspace and, experiments in *virtual cities* might create a powerful field for innovative planning practices. Clearly, there is the need for further empirical investigation of these phenomena, to probe their social and technological interrelations.

The academic debate surrounding the interrelation between virtual communities, virtual cities and urban governance suggests that cyberspace might provide a new arena for the development of democratic practices and new forms of *virtual public spaces*. The debate about *cyberspace democracy* is largely identified with the technological determinist bias of the US public and discussion about the development of cyberspatial technology (Kitchin, 1998: p.42-43).

Graham and Aurigi suggest that in *'North America a growing band of optimists have urged us to look to cyberspace as the new public realm'* (Graham and Aurigi, 1997:

p.21). These ideas have been subjected to a good deal of criticism on account of their utopian or else of their technologically determinist bias.

With regard to the notion of *cyberdemocracy,* Negroponte adopts a very radical outlook to how *'the new digital world holds the potential breakthroughs in resolving the social problems of poverty and inequality in America, and for the matter, world society'* (Negroponte, 1995). Although there is a stream of North American supporters for this position within the public sphere, this approach has been heavily criticised by academics because of its technological bias (Schon, Sanyal and Mitchell, Eds. 1999: p.8).

When it comes to utopian visions of the democratic uses of cyberspatial technology, the main point at issue does not concern the potential of technology to allow pervasive interaction, which most authors within the academic debate would agree with. The main criticism centres on the de-politicisation of the utopian debate, and the fact that it lays emphasis on the power of technology per se, without taking into account its social and political implications.

Empirical evidence of the actual uses of cyberspatial technologies in North American and British cities on a local scale, have so far followed a general trend which is opposed to the democratisation of cyberspace, either between cities or within cities (Graham and Marvin, 1996). This analysis envisages a process of social and spatial polarisation in which polarisation and segmentation are simultaneous patterns both in real places and in their analogies within virtual environments.

Emergent innovative experiments into urban planning are already taking place on a local scale (Schon, Sanyal and Mitchell Eds. 1999). Consequently, although the use of cyberspatial technology does not directly imply more democratic and inclusive planning practices, it does entail emergent alternatives aimed at more democratic and inclusive ways of planning.

**- virtual public spaces and cyberspatial access**

The question of digital inequality has been central to the debate on urban space governance and the recent development of virtual cities through the activities of the urban agencies. The different epistemological positions reflect the same opinion about this (Graham and Marvin, 1996; Castells, 1996; Massey, 1993): that *'pervasive social inequalities characterise access to, and use of telecommunications and telematic infrastructures in cities'* (Graham and Aurigi, 1997: p.21).

Graham and Aurigi make a further point when they argue about the complexity of these inequalities: *'simple access to networks does not necessarily imply that use develops, that this use has any meaning, or that it necessarily brings power and advantage to users'* (Graham and Aurigi, 1997: p.22). They stress that rather than being a single and unifying space, it seems likely that different network topologies are emerging within cyberspace with different degrees of power and control.

Our attitude to *virtual cities* and *virtual communities* is that universal access is necessary but insufficient for the development of public interaction within virtual cities and new inclusive practices within cyberspace in general. Therefore, the infrastructure that is required for citizens to access cyberspace must also be taken into account. Given the diversity and the nature of these digital environments, a wide-ranging typology is employed which covers two basic kinds of virtual cities and communities: *grounded* and *non-grounded.*

Grounded virtual cities comprise *'the experiments developed by urban agencies to feed back positively and related to the development of specific cities'* (Graham and Aurigi, 1997: p.26). Virtual communities can be broadly characterised as spontaneous movements of people getting connected through social networks for purposeful interaction within cyberspace (Kitchin, 1998).

The development of urban policies aimed at creating electronic public spaces, have been traced by Graham and Marvin (1996: p.359-360) back to the early 1980s in North America and later on in Europe. However, the translation of these initiatives into cyberspace had started to spread worldwide only by the mid-1990s with the growth of the Internet. Graham and Aurigi see these initiatives as attempts *'to address the context of urban crisis, and the pervasive growth of the Internet',* carried out by *'city*

*authorities across the world' that 'have recently constructed hundreds of experimental virtual cities, based on the World Wide Web'* (Graham and Aurigi, 1997: p.24).

Their analysis of this first wave of experiments suggests that:

*'Most of the civic Web sites, that are being shaped by public administrations, are configured as little more than urban databases, collating information for residents, and non-residents, about political processes and decisions in town management, as well as transport information, leisure opportunities, cultural events, accommodation and restaurants for tourist'* (Graham and Aurigi, 1997: p.26).[43]

They go on to argue that *'how deep, comprehensive and up-to-date such information is can vary dramatically from site to site'*, while they insist that *'a common characteristic to many virtual towns seems to be a relative uni-directionality and the lack of opportunity for genuine interaction and discourse.'* As a result, 'although accessibility to the site tends to be wide, it is *'mainly configured for passive use'*, where the ability to e-mail is often the only opportunity for interaction (Graham and Aurigi, 1997: p.26). Further, they note that under such conditions these experiment achieve a low level of public participation.

Batty also comments on these earlier examples of virtual cities, and notes that *'these digital forms have not been developed for professional uses, for designing real cities'* (Batty, 1998: p.9). He highlights the ways in which municipalities and local governments have exploited the Net to communicate information, varying from *'digital advertising about how they can serve their citizens'* to *'publicising plans for their future'* (Batty, 1998: p.7-8). He also points out the ephemeral nature of these representations and says that *'the fact that cities can be represented 'virtually' means that they can be changed incessantly'* (Batty, op. cit.).

As regards the development of the professional uses of *virtual environment*[44] it can be argued that *'true virtual cities'* still have to be constructed. Smith, Dodge and Doyle attempt to classify the *'online environments which have had the label virtual city attached to them'* by distinguishing between four types: *'Web Listing Virtual Cities;*

[43] Among the examples examined by these authors there was Bristol (http://www.bristol.digitalcity.org) Amsterdam (http://www.dds.nl/) and Bologna and (http://www.nettuno.it/bologna/).
See Graham and Aurigi (1997: p.26-32), for further information.

[44] See Batty, Dodge, Doyle and Smith (1998) for further analysis on virtual environments.

*Flat Virtual Cities; 3D Virtual Cities and True Virtual Cities'* (Smith, Dodge and Doyle, 1998: p.38). They claim that the first two forms are misleading.

These authors maintain that *'virtual city is a term which has been used to describe a diverse range of information interfaces, being particularly prevalent on the World Wide Web'* (Smith, Dodge and Doyle, 1998: p.38). They argue that while there are numerous ways of visualising digital environments, these environments can vary in the ways they are constructed, just as the underlying real world information can be tailored to serve a variety of planning and urban design uses. Hence, the earliest experiments described in this study as *grounded virtual cities* represent, at best, good examples of flat virtual cities.[45]

The professional version of *3D Virtual Cities* and *True Virtual Cities* comprise types of second and third generation of virtual cities, as they allow digital modelling of aspects of the physical world and simulation of social interaction, respectively. The technology to build 3D virtual cities is already in place, although it is still in its earliest stages of development in the Web. The linkage between GIS, CAD and VRML is a more recent development. Yet, at present there are still doubts on *'how far true virtual cities can be developed'* (Smith, Dodge and Doyle, 1998: p.43).[46]

Graham and Aurigi also refer to technological constraints when they claim that experience is *'far too limited to fully assess the wider potential of virtual cities'* (Graham and Aurigi, 1997: p.33). They raise the question of universal access and insist that these kinds of virtual cities reflect the bias of the Internet, as they are dominated *'by narrow, technological elites from 'majority' groups'* (Graham and Aurigi, op. cit.). They note that the pervasiveness of global access throughout the world may dilute their *'local identity'*. Yet, another major problem is connected with the low level of genuine interaction.

The authors draw attention to two key features of these initiatives. First, they state that it is not possible to *'expect virtual cities, or other community IT initiatives, to emerge as simple replacements to some long-lost ideal of 'deliberative model of public sphere'*

[45] This is the case of Virtual Bologna as analysed by Smith, Dodge and Doyle (1998), Graham and Aurigi (1997) and Batty (1998).
[46] See CASA Virtual Cities Resource Centre at http://www.casa.ucl.ac.uk/planning/virtualcities.html

(Graham and Aurigi, 1997: p.34). However, they believe it is reasonable to expect that these experiments might increase their social and institutional capacity to link community information technology networks at the grassroots level.

They envisage a new role for urban planners which centres on the idea of having a new form of urban planning which they call *'urban cyberspace planning'* (Graham, 1999 and Graham and Aurigi, 1977). They argue that *'cyberspace planning and virtual cities, if properly configured'*, may in the longer term, support the *'potential of local policies to sustain democratic, inclusionary, and discourse-driven electronic spaces'* (Graham and Aurigi, 1997: p.36).

However, Graham and Aurigi's way of *'urbanising cyberspace'* remains in the conceptual domain, as a socio-political project for the long term. Moreover, they fail to make clear what they mean by 'properly configured' cyberspace planning and virtual cities. The central question that they address - whether or not *'it is possible for local virtual cities to work against, rather then simply replicate, the systematic social and spatial bias of the Internet as a whole'* (Graham and Aurigi, 1997: p.35) - remains an open question.

We believe that the problems of low levels of interactivity and citizen participation within this kind of virtual city may be related to the development of the professional uses of cyberspatial technology in urban planning, as well as to the objectives of planning practices. In order to address this issue, account needs to be taken of the links between social and technological infrastructures within cities and the nature of the changes in the ongoing process caused by technological innovations.

### 2.3.2 Emergent Practices within Virtual Environments: grassrooted community development

The aim here is to concentrate on the local scale by glancing at the emerging practices within cyberspace. Our approach is based on the two-fold paradigmatic shift that is taking place within *radical planning* (Sandercock, 1998).[47] We wish to investigate the

[47] See sub-section 2.2.3.

possible emergence of new objectives and methods for radical planning practices within *cyberspace*.

This shift in the realm of planning practices is a departure from the conceptualisation of a new epistemology of social learning. Our goal is to find out the objectives and methods that could define a new praxis that is based on the use of cyberspatial technology and is aimed at social change. These objectives should embrace new methods that employ cyberspatial technology to improve the social construction of planning knowledge on a local scale.

**Empowering planning practices through cyberspatial technologies**

The application of cyberspatial technologies for urban planning practices on a local scale, is a very recent field of investigation and experiments in this field are still in their initial stages. When analysed in broad terms, it was clear that these experiments barely succeeded in addressing the proactive potential of the use of cyberspatial technology for social change. Our aim is to extend the discussion by deconstructing the conditions required for undertaking this social project. This is explored further by considering some current experiments, where this social construction is being carried out at a local level.

Two types of experiments are focused on; these involve the uses of cyberspace technology in urban planning practices and the social actors taking part in this political project on the ground. First, there are the initiatives that derive from the professional use of information technology in urban planning activities and which enable public participation to occur at a community level. Then there are the grassroots initiatives that refer to the work of activists who seek to empower community development. Although both types relate to the strategic uses of information technology, the aim of this study is to demonstrate that the social uses of cyberspatial technology in planning practices need to incorporate the routine usage of the technology on a community scale.

**- information technology, planning and community development**

Experiments in the professional use of advanced information technologies to work with low-income communities had started to grow by the early 1990s in North America, particular in the research projects underway at MIT's Department of Urban Studies and Planning, provided by Shiffer.[48] These investigations centred on *'how emerging information technologies (IT), such as multimedia representational aids, can be used to better inform (or misinform) discourse in planning and community-related settings'* (Shiffer, 1999: p.193). The main question at issue is - *'how do we enhance the capability of citizens to function intelligently and creatively?'* (Shiffer, op. cit.)

Shiffer's argument is constructed around the central idea that IT is not a powerful technological tool simply because it communicates information, but chiefly because *'IT can help people to comprehend information'*. Hence, *'IT can deliver relevant knowledge*[49] *in a community development and planning context'* (Shiffer, 1999: p.193). He addresses the question of how to deliver relevant knowledge by centring on three categories of IT uses - *community networking, collaborative planning* and *representation,* illustrated by several examples of implementation.

In relation to the *community network* category, he notes that the impact of IT on communities is still at an embryonic stage. The relevant question at issue is - *do community networks leads to community networking?* His point is that there is a growing number of community-based network sites on the Internet and that these can be classified into three types, depending on who delivers the service: *grassroot organisations,*[50] *governments,*[51] and *entrepreneurs.*[52] A common feature among these sites is that they are *'rapidly proving to be a significant channel of communication among like-minded people'* (Shiffer, 1999: p.194-195). They can vary from simple text-based community information systems to more advanced hypertexts and graphical interfaces that might connect to a rich base of information, as well as bulletin boards and e-mail facilities (Shiffer, 1999: p.205).

[48] See http://gis.mit.edu/people/mshiffer/

[49] Relevant knowledge is defined as: *'a recognition of problems and issues faced by a community, an understanding of the range of alternatives scenarios that can begin to address these problems and issues, an acknowledge of the actors and institutional mechanisms available to support action, and some appreciation of the implications of action based on an understanding of present conditions and past trends'* (Shiffer, 1999: p.193).

[50] See Shiffer (1999: p.194-196) for the example of Milwaukee and Buffalo systems.

[51] See Shiffer (1999: p.197-199) for the example of City of St. Louis and its Community Development Agency.

[52] See Shiffer (1999: p.199) for Boston's example of the Inner City Access system.

However Shiffer notes that there are still some drawbacks and concerns related to *Community Information Systems* apart from the obvious issues of access to technology (Shiffer, 1999: p. 205). Among these are the *'challenge of gaining a critical mass of users'* to achieve a *'critical level of activity'*, particularly in the case of highly localised community information systems (Shiffer, op. cit.). At the same time, he expresses his concern about the effectiveness of the Net as a medium for increasing general public awareness of specific issues.[53]

A second role IT might play in planning and community development, lies in the use of *Collaborative Planning Systems* (Shiffer, 1992) to enhance community participation in the planning decision-making process, on a local scale. Shiffer's main argument is that *'planning support has traditionally been provided using analytical tools such as geographical information systems (GIS) and various types of forecasting models'* (Shiffer, 1999: p. 199). However, *'augmentation of discourse using these analytic tools has traditionally been handicapped by a lack of immediate response and abstract output that tends to exclude from such conversations those who are not technologically sophisticated'* (Shiffer, op. cit.).

His conceptualisation of the use of *Collaborative Planning Systems (CPS)*[54] aims to overcome these constraints. Shiffer's first prototypes of CPS were designed before the widespread development of cyberspatial technologies. At that time, he stated that *'CPS represents a move towards an open technology in that it stresses a participative form of information organisation with an emphasis on the notion of people working together in a exploratory way'* (Shiffer, 1992: p.715). CPS was first designed as a 'stand-alone' *hypermedia*[55] system, that *'could make use of graphical interfaces, associative information structuring and computer collaborative work'* (Shiffer, op. cit.).

The objective of CPS is to enhance group decision-making in urban planning situations in the entire use of information technology so as to access urban planning information.[56] Shiffer creates three categories of vehicles which can be used to deliver

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[53] *'This effectiveness is likely to drop as the number of individuals and groups using the medium as a platform for discussion continues to grow'* (Shiffer, 1999: p. 206).
[54] See http://yerkes.mit.edu/ncpc96/home.html for Washington DC example.
[55] See Shiffer (1992: p.713-714) on the definition of hypermedia.
[56] For him *'the quality of plans and decisions is dependent upon the amount of relevant information used during the formulation of problems, development and evaluation of alternatives, and the making of decisions'* (Shiffer, 1992: p.709).

relevant planning information: *analytical tools*, *media* and *collective cognition.* (Shiffer, 1992: p.709) Each category is related to the type of information delivered. Analytical tools often deal with quantitative information and they are usually implemented with the aid of computers; media is related to general information that can be provided both by printed and electronic forms of communication; and, collective cognition covers information from observations, practical experience and political 'savvy'.

Shiffer's view about the use of information in urban planning group situations leads him to conclude that three barriers need to be overcome to increase access to urban planning information:

*'the ergonomic difficulties in using tools often caused by inadequate human/machine interfaces; difficulties in filtering/accessing the vast amounts of information available from a variety of media; and, the individual orientation of most analytical tool implementations'* (Shiffer, 1992: p.711).

By using CPS it is hoped that these three barriers can be overcome and this is of crucial importance to the access of relevant urban planning information in group situations of decision-making. Although Shiffer acknowledges the problem of political, organisational and economic barriers in denying access to urban planning information in decision-making processes, he argues that the three barriers are *'more tangible and universal in nature'* (Shiffer, 1992: p.711).

Shiffer's critical review of his own experiences of implementing these systems highlights the fact that CPS can offer an *'integration of analytic tools, relevant media, and cognitive information, especially if they are implemented in a place where people can interact with one another along with these information systems'* (Shiffer, 1999: p.207). However, he also expresses some important concerns about the use of these systems. They encompass (a) the cost of maintaining these systems, (b) the issue of accessibility, (c) the computer-user interface for in group meetings situations, (d) the content of the information[57], (e) the autonomy of community groups.[58]

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[57] *'Another major concern about collaborative planning tools is that the information they contain is not value neutral. Just as these tools can be used to create compelling representations of urban futures, they can create compelling misrepresentations' (Shiffer, 1999: p.207-208).*

[58] *'(...) community groups have the capacity to become more technologically autonomous as advanced IT tools (such as authoring, serving, and client software for the WWW) become more accessible. Nevertheless, these groups will likely need expert help to get started'* (Shiffer, 1999: p.207-208.).

The third category is related to the potential role of IT in community development as a *representational tool.* Shiffer's central argument is that IT might be a strategic weapon for advocacy planning. He reviews two experiments he was involved in, in St. Louis[59] and, in Boston.[60] In both cases they involved local government initiatives to set up electronic versions of their strategic plans. These electronic versions comprised multimedia systems[61] that link video interviews with GIS maps of the affected areas, with the relevant qualitative and descriptive information.

In reviewing these experiments, he underlines their effectiveness as evaluative mechanisms. He adds that these experiments were initially delivered on CD-ROM because of the large amount of digital video and graphics. However, he also says that *'as video compression technology mature they can be more effectively implemented in a network environment such as the Internet'* (Shiffer, 1999: p.204).

As regards the representational aspects within the network environments, his analysis draws attention to two important constraints. The first is the issue of costs and social barriers that *'may make access to even more receptive media outlets and advocates difficult'* (Shiffer, 1999: p.208). He cites the role of the Net in being able *'to allow for a greater degree of self-publication'* and significantly *'lower such barriers'*. However he notes that *'it remains to be seen whether this will truly broaden access to a receptive and relevant audience or simply lead to one's voice becoming lost in the "din" of the Internet'* (Shiffer, op. cit.).

The second constraint lies in the fact that the technology is not neutral. Hence, his approach to IT, as a representational form of technology, puts too much emphasis on the role of the planner as the translator of community aspirations. Shiffer believes that *'the careful planner will want to be concerned with how people are represented in these systems as well as how information is represented'* (Shiffer, 1999: p.209).

As well as this last constraint, he is concerned about the issue of maintaining the system, and insists that *'one needs to determine who is responsible for the maintenance*

[59] See Shiffer (1999: p.202-204) on St. Louis' case.
[60] See Shiffer (1999: p.202-204) on Boston's case.
[61] *' (...) the use of multimedia for representation of distressed communities has the capacity to provide a foundation for an enhanced "community voice" through a broaden degree of communication among area residents, planning professionals, and government officials'* (Shiffer, 1999: p.204).

*and integrity of information contained with this'* (Shiffer, 1999: p.209). Accordingly, he claims that *'challenges will continue to center on the legitimacy of arguments, the validity of data, and various assumptions and premises that went into the formulation of a position'* (Shiffer, op. cit.). However, he underlines the fact that *'these challenges are not unique to interactive multimedia'* (Shiffer, op. cit.). His view is that *'the characteristics of the IT actually brings these out into the open more readily'* (Shiffer, 1999: p.210).

Finally he claims that *'not all community groups and planning agencies need to strive to posses this technology'* (Shiffer, 1999: p.210). Despite this, he maintains that they *'should possess an understanding of its power and limitations so that they can view it from a critical perspective'* (Shiffer, op. cit.).

Our critical review of Shiffer's approach centres on two leading concerns (a) planning objectives (b) planning methods. The first has a bearing on Shiffer's epistemological position with regard to what constitutes relevant urban planning knowledge for community development. It is also connected with the distinction between information and knowledge and how he envisages IT as a tool to deliver this relevant knowledge. The second is relates to Shiffer's CPS and the advocacy approach in urban planning, which are the basis of his propositions for new uses of IT in urban planning and community development.

Given that objectives and methods in urban planning are intertwined, in our view Shiffer's approach fails to foster a radical shift in urban planning, even though it does help to promote better community understanding of local problems. The reason for this is that, in this model, the planner is still the key actor of the planning process, in much the same way as he was in the advocacy planning practices of the mid 1960s (Sandercock, 1998a).

The planner is still the social actor in control of the relevant planning information and continues to act on *behalf of* the local community. This is brought about by using a more powerful language that incorporates electronic multimedia facilities and which might help to narrow the communication gap between the social actors involved in the planning process. In this way, the planner is in a position to enhance his/her ability to

listen to the community, and thereby add the voices of the community to the traditional rationale of decision-making. However, the community's needs, desires and aspirations, continue to operate as inputs for the electronic systems that are constructed by the planner.

In our view, if this approach is adopted, the planner is, at best, helping to construct community-based planning knowledge *for* the community. The community is still the recipient of planning knowledge and action rather than being the social producer. From this perspective, IT might be helping to enhance community access to information, but there seems to be no social production of new knowledge taking place at a community level. Consequently, the use of IT does not offset the disadvantage communities have in power relations within the planning process, except to a limited extent when a social political project is already underway on a local scale.

A crucial theoretical question that remains open, is whether or not the use of IT might allow a paradigmatic shift in urban planning and community development that favours social change.

**- grassrooted community development and information technology**

From a historical perspective, the use of computation to empower communities and grassroots politics is not a new idea. It had became an academic issue by the mid-1970s, when the first personal computers had come on the scene (Turkle, 1999). The social meanings of personal computers during the last three decades can be distinguished in three ways.

In the early 70s, some first-time owners of personal computers, among them veterans of the 1960s student protest movements, *'made technology the centrepiece of a new utopian politics'* (Turkle, 1999: p.342-343). This utopianism of the 70s envisaged personal computers as *'a technology that would instil the habit of transparent understanding and invite the marginalized to challenge political power'* (Turkle, op. cit.).

During the 80s, the growth of the computation industry had led to the 'commodification' of personal computers which by this time were being marketed as an *'extension of self, a fashionable accessory for the isolated, often elite users'*, rather than *'part of communities'* (Turkle, 1999: p.344). Nevertheless, a number of community activists were involved in grassroots experiments in using computers for community development; these form the origins of the movement, which Beamish calls the *'community computing movement'* (Beamish, 1999).

In the early 1990s, the expansion of the Internet added more complexity to the social meanings of the personal computer. As well as being a commodity, *'each personal machine is now a communications gateway'* (Turkle, 1999:p.347). The scope for networking has given the personal computer a new social meaning, which is associated with the issue of community development on a local scale. This is on account of its capacity to store and process information, and because it can communicate this information by combining different media in a whole digital environment.

Beamish suggests three different ways to define the recent development of community computing on the Web. She argues that the term, *community computing*, can refer to community networks, free online access, public access centers, and the provision of information. The first referred to *'community networks or Free-Nets that provide free dial-up access to the Internet and information about local community'* (Beamish, 1999: p. 351). The second came later, with the association of the term with *'public access computing centres where hardware, software, and technical support are provided to neighbourhood residents'* (Beamish, op. cit.). The third, and most recent one, extends the term community computing, to mean *'providing relevant and interesting content online for specific low-income groups with the intention of motivating them to use the technology'* (Beamish, op. cit.).[62]

Although she regards the expansion of the meaning of community computing as a positive step, she states that two critical aspects should be considered. First, it de-politicise the meaning of the term by concentrating on the idea of community computing as *'a thing'*, rather than *'a process that can achieve an outcome'* (Beamish,

[62] *'A number of commercial sites are appearing that claim to be a form of community computing.* As a result she adds that: *'the word, if not the complete concept of community computing, which for so long has been the domain of community volunteers, is now also being embraced by the private sector'* (Beamish, 1999: p. 352).

1999: p.352). Second is the fact that *'enthusiasts'* often *'claim their particular versions of community computing will benefit citizens, democracy, schools, and business'*, but they *'cannot specify what these benefits will be'* (Beamish, op. cit.). She agrees with Morino's view[63] that the end result of community computing is *'a resolution or solution to a problem in the community'* (Beamish, op. cit.). She also shares his position that the concept of *community networking* in the social sense is not new although the use of electronic communication to extend and amplify it is.

She reviews a wide range of types of community computing projects taking place in North American Web sites. She argues that the three approaches to define community computing are too broad and must be sub-divided in two ways (a) by the project organiser or (b) by the target group (Beamish, 1999: p. 353-363).

She also praises a number of projects that *'have trained low-income residents, provided access, and created repositories for neighbourhood information'* (Beamish, 1999: p. 363). But she notes that there are serious problems, whatever the type of the project may be. There is the question of the way they approach their target groups, which is more like that of *'consumers'* than *'producers of information'* (Beamish, 1999: p. 364). On the other hand, like Shiffer she claims there is a need to *'maintain a high standard of updated information'* (Beamish, op. cit.).

She suggests three projects as relevant examples of *'significant community benefit'* (Beamish, 1999: p. 365). These are *The Computer* Clubhouse (Resnick, M., Rusk, N. and Cooke, S., 1999); the *Community Memory Project in the South Bronx* (Tardieu, 1999); and, the *Healthy MUSIC* in Newark (Shaw, A. and Shaw, M., 1999).

None of the three projects is directly connected with the use of IT in urban planning practices. However, they are all, in different degrees, concerned with community development on a local scale, which is central for the investigation of planning practices aimed at social change.

[63] Morino, M. (1994) *Assessment and Evolution of Community Networking,* as referred in Beamish (1999: p. 352).

The Computer Clubhouse[64] was created as an *'open community-access center'*, where *'members of the inner-city communities (youth and adults alike) can use computers at little or no charge'* (Resnick, M., Rusk, N. and Cooke, S., 1999: p.265). It seeks to create *'a learning community - where young people and adult mentors work together on projects, using new technologies to explore and experiment in new ways'* (Resnick, Rusk, and Cooke, op. cit.). It encompasses a broad educational philosophy known as *"constructionism"*:

*'Constructionism is based on two types of "construction". First, it asserts that learning is an active process, in which people actively construct knowledge from their experiences in the world. People do not get ideas; they make them. (This idea is based on the constructivist theories of Jean Piaget.) To this, constructionism adds the idea that people construct new knowledge with particular effectiveness when they are engaged in constructing personally meaningful products.'* (Resnick, M., Rusk, N. and Cooke, S., 1999: p.271)

The other two examples, the Community Memory Project, in South Bronx and, the Healthy MUSIC project in Newark, focus specifically on the uses of computers and digital communication systems for communities in low-income areas. The introduction of computers into a South Bronx neighbourhood was an extension of a larger project, the *'street libraries'* (Tardieu, 1999: p.293), and a part of the *'Fourth World Movement'*.[65] This was developed in the mid-1980s and was based on the use of very simple stand-alone machines. (Tardieu, 1999: p.290) The Healthy MUSIC,[66] on the other hand, is a more recent experiment involving the development of networking systems - *Multi-User Sessions in Community* - that can be used in low-income neighbourhoods to support community organisations. (Shaw and Shaw, 1999: p.322-324)

Although its use of distinct technological tools has depended on the growth and availability of computation resources at different periods, both projects seek to bring about social inclusion and enhance the role of information technology in community development. Yet, as in the case of the computer Clubhouse project, in developing social knowledge their theoretical basis is founded on the paradigms of constructivist and constructionism theories.

[64] See http://www.computerclubhouse.org/
[65] See http://www.atd-quartmonde.org/accueil-uk.html
[66] See http://www.media.mit.edu/~mmassey/MUSICintro.html

When considering the lessons that can be learnt from the Community Memory Project Schon maintains that:

*'The lessons that Tardieu draws are not about the community encyclopedia per se, but about the meanings of key terms relevant to uses of digital technology by the poorest of the poor: not "access" but "reinvention for different aims"; not the "personal computer" but the "community computer"; not "computers to be fed" but "computers to feed"; not "technology to give you answers" but "technology to help you become a researcher and frame your questions"* (Schon, 1999: p.17).'

Likewise, Schon says that the Healthy MUSIC project, *'sought to develop applications for the computer that would enable poor residents of communities of place to become active producers rather than passive consumers of digital technology'* (Schon, 1999: p.17). The Shaws' experience of implementing the MUSIC networking system allows them to prove their hypothesis that by *'using the network, residents have been able to organise numerous events and to come together during crises'* (Shaw and Shaw, 1999: p.330). Thus, one of the most important results has been the development of what they term *'neighbourhood activism'* (Shaw and Shaw, op. cit.).

However, the Shaws state that these were particular community experiences and contrasted with the general commercial pattern of the driving forces of networking technology. Although they acknowledge that the merging of the entire media will soon bring this technology into television, they believe *'these forces are not thinking of using this particular technology to help develop neighbourhood-led initiatives and social constructions'* (Shaw and Shaw, 1999: p.334). Yet, for them the *'productive uses of this technology are real and viable, and we must struggle to bring these possibilities into every community'* (Shaw and Shaw, op. cit.).

These three experiences share the same paradigmatic position regarding the social meaning of technology. The ways of using the computer which are highlighted by each project reveal important common methods in the way they use computers to respond to a particular situation, although they employ different technological resources.

### Insurgent practices and the social construction of virtual environments

The investigation into the conditions of grassroot community development within digital environments provided above demonstrate that apart from the two extreme

determinist positions - technological utopia and social economic constraints - information technology is, essentially, a social construction. Furthermore, if this cultural construction is geared to designing a political project aimed at social change, it requires universal access to IT, including the disempowered on a local level. However, until now, experience has demonstrated that, it is not enough to set the electronic infrastructure to access the technology, although it is a basic requirement. Access to informational technology aimed at the needs of the disempowered should also take into account the social infrastructure on a local scale.

This implies a dual process of setting up an electronic and social infrastructure for grassroots community development. By electronic infrastructure is meant setting up the physical infrastructure of *cspace* (affordable hardware and software, media facilities, plus good quality of connectivity). By social infrastructure, is meant the social structure that makes it possible for people to interact within *cyberspace* (*'good schools, well-equipped community centres, and most important of all, educated and technology-receptive individuals, both children and adults who are capable of fully exploiting IT's interactive potential'*, Sanyal and Schon, 1999: p.378). The design of this political project should take place on a local scale, where governments and grassroots movements might both play key active roles in defining the required public policies to support this scheme.

However, setting up these two kinds of infrastructure is just the first stage in getting this wider social project off the ground. Apart from this, the implementation of these infrastructures must parallel the development of a broad process of social construction of knowledge on a local scale. This has different meanings depending on the epistemological position one adopts. When discussing the set of experiments above, an attempt was made to demonstrate the huge differences they might entail when implemented. The degree of variation between the two sets of experiences (grassrooted community and planning practices) showed the outcomes one might expect from the different approaches in the use of information technology to empower grassroot community development.

From a theoretical perspective, the experiments in grassroots community development share a conceptual framework, that adopt an approach based on constructionism (Shaw

and Shaw, 1999; Tardieu, 1999; Resnick, Rusk and Cooke, 1999; Turkle, 1999; and Bamberger, 1999). This approach focuses on the process of constructing knowledge at a community level, within which the use of information technology is part of the process of social learning. This process can be developed in specific learning environments aimed at adults, young adults or children, as in the case of the *Clubhouse* and the *street libraries*, as well as in wider virtual environments, as in the case of the *MUSIC* project which is aimed at specific local communities.

The emphasis is on the learning process whether it is developed on an individual or on a group/community basis. The community is the key actor of the learning process as it operates from its own socio-cultural local environment. This implies exploring *'ways to use the technology to help people to become the producers rather than consumers'* (Shaw and Shaw, 1999: p.338). Information technology is seen as a *'tool for thought'* (Resnick, Rusk and Cooke, 1999: p.282), a resource for *'inquiry'* and *'invention'*, a *'mediator'* between *'action knowledge'* and *'symbolic knowledge'* (Bamberger, 1999: p. 238-249).

This conceptual approach derives from Piaget's genetic epistemology.[67] Seymour Papert[68](Resnick, Rusk and Cooke, 1999: p. 283) developed the constructionism approach by extending Piaget's constructivist theory into the realm of computation so that it could explore the potential of information technology in the learning process and focus on childhood development. The Shaws argue that while *'constructivism focuses its attention on the internal mechanisms of learning and development'*, constructionism, as defined by Papert, expands this approach by *'addressing particular aspects of developmental activity'* (Shaw and Shaw, 1999: p. 319). In the view of these authors, constructionism focuses on the learning process by means of the *'development cycle'* which includes interacting with the external environment, either real or virtual (Shaw and Shaw, op. cit.).

The Shaws outline a conceptualisation of *social constructivism* conceived as an extension of both theories, *'taking these theories into the social setting'* (Shaw and Shaw, 1999: p. 320). It focuses on *'the construction of activities, projects, and*

[67] See Chapter 3 for further analysis of Piaget's constructivist theory.
[68] See http://papert.www.media.mit.edu/people/papert/ for information on Papert's research projects in epistemology and learning.

*relationships that help define an evolving community'* (Shaw and Shaw, op. cit.). Their expectation is that *'computer networks can provide organisational infrastructure for just about any type of collaborative activity'* (Shaw and Shaw, 1999: p. 322).[69]

In our opinion, these experiences in using information technology for the development of a grassroots community comprise what can be called *informational spaces of insurgent citizenship* (to use Holston's terminology).[70] They embrace *insurgent* practices of citizenship precisely because they work against the dominant mode of community networking within cyberspace and thus embody new possible alternative futures. They challenge the dominant globalised *culture of real virtuality* (Castells, 1996) while creating new forms of citizenship and social relations within cyberspace, which are grounded in a specific place. For this reason, we believe these experiments embody significant theoretical concepts that need to be taken into account, if we wish to formalise the objectives and methods for *cyberspace planning* (Graham and Aurigi, 1997), aimed at an *insurgent urbanism* (Holston, 1999) within urban virtual environments.

So far, the emergent experiments in *cyberspace planning* (promoted by governmental or academic organisations) have involved practices which are very similar to those of advocacy planning in the early 1960s (Sandercock, 1998a). In this way they have failed to fully explore the interactive potential of cyberspatial technologies for building new social knowledge.

Our investigation of the social uses of IT for the disempowered leads us to conclude that the question about urban planning practices, remain open and are as follows. Is it possible for urban planners to learn from the experiments of grassroots community development within cyberspace? How can they incorporate processes of active social construction of planning knowledge within cyberspace in favour of the disempowered?

We believe there is a need for a socio-cognitive approach for a better understanding of the social construction of urban planning knowledge, which might help to

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[69] *'If computer networks begin to support neighbourhood information infrastructure, then these networks can become tools for social constructionism. They can help members of a community rebuild a fractured social setting'* (Shaw and Shaw, 1999: p. 322).

[70] See sub-section 2.2.2.

conceptualise a new role of IT within this process. On the other hand, as cyberspace technologies mature, virtual worlds can be built with increasing interactive capabilities thus opening up the field for the development of new forms of *online planning* that might support social interaction, community development and the sharing of knowledge, both within virtual communities and across communities.

## 2.4 Theoretical Propositions

Our main theoretical proposition concerns the key role of advanced information communication technology in supporting the ongoing paradigmatic changes in the urban planning process, which is a shift away from the dominant traditional *instrumental rationality* to a *communicative rationality*. A theoretical path has been followed that highlighted two distinct but complementary analytical fields within participatory planning - *reasoning* and *action*.

The former lies in an academic debate about the re-thinking of urban planning theories and practices, as well as the role of the main social actors (citizens and planners) within the public sphere. It is related to the central theoretical question of how to define a *radical* paradigmatic shift in urban planning theories and practices towards an *epistemology of multiplicity and social learning*. Hence, *social spatial relations* and *power relationships* are the main analytical categories in the study of participatory planning practices, aimed at social change within informational space. These include the concepts of *insurgent citizenship* and *insurgent urbanism* which, when translated into informational space can be conceptualised as *information spaces of insurgent citizenship* and *cyberspace planning*.

The second analytical field refers to changes in participatory practices in the development of advanced information technologies and the rise of the informational space. *Cyberspace* and *grassroots virtual communities* are the main descriptive categories which underpin the study of the new patterns of social relations within virtual geography and new forms of participatory planning practices (online planning) within the institutional virtual environments at a local level.

The purpose of designing this multi-disciplinary framework and the conceptualisation of these analytical and descriptive categories is to support our empirical investigation into the rise of informational space within the network of Brazilian cities and the particular case study of Porto Alegre. Our goal is to find out whether or not, insurgent citizen participation, grassroots community development and the local government political project of participative democracy, can be empowered by the use of IT in local planning practices.

Chapter 3

# Towards a Socio-Cognitive Approach to Participatory Planning within Informational Space

## 3.1 Introduction

There are three fields of knowledge which comprise our theoretical framework for the study of the social spatial dimension of the information process. This chapter seeks to complete this theoretical framework for the study of informational space by adding a socio-cognitive dimension.

We believe that this approach might help to understand the challenges of social learning in participatory planning within informational space. Our main theoretical concern is – *how can the use of advanced information communication technologies enhance citizen's participation?* Two lines of thought are examined in the light of social cognitive theories. The first refers to the concept of *intellectual cooperation,* within a constructivist framework. The second examines decision-making processes from the perspective of *social representation* systems.

In the case of urban space, it was argued that a participatory planning praxis to value difference might allow the development of *autonomy* by encouraging *self-management* and *cooperative practices* (Friedmann, 1998). Further, when planners addressed the issues of *social justice, difference* and *insurgent citizenship* (Sandercock, 1998), they dealt with social spatial relations, within a wider scheme of *political empowerment*, by focusing on opportunity for *self-development*, *social inclusion* and *grassroots community development* (Friedmann, 1998; Holston, 1999 and Shaw and Shaw, 1999). Hence, the formulation of new planning practices relies to a great extent on defining how to empower and qualify citizen participation. This is why we intend to examine participatory practices in terms of two aspects of social relations in the realm of urban planning and civil society politics: interpersonal social relations and group (or collective) social relations.

A socio-cognitive constructivist approach[1] allows for a multi-disciplinary relationship that might help to clarify the boundaries between rational structures of reasoning and ideology within social relations in urban planning. This will serve to narrow the gap between planning theory (intellectual knowledge) and praxis (action knowledge).

In this chapter a brief review of cognitive psychology theory is provided on the basis of two conceptual lines of inquiry that focus on two separate, but interrelated, dimensions of social spatial relations. The first concerns the social basis for creating and developing knowledge. It centres on the inter-individual cognitive relations based on reasoning, and follows the *genetic constructivism*[2] of Piaget (1995). The second refers to collective decisions and socio-cognitive conflict, regarding the role of group relations in bringing about a consensus in decision-making. This follows Moscovici's (1994) theory of *social representation*[3].

### 3.2 Social Spatial Relations and Cognitive Structures

The interdisciplinary relationship between cognitive psychology and the social spatial sciences applied to urban planning has, traditionally, been formed by regarding space as the main analytical category, and thereby focusing on concepts of spatial cognition, rather than social cognition. If a spatial cognition approach is adopted, this interdisciplinary relationship can investigate the study of the cognitive structures that lead to an understanding of space reasoning, perception and representation (Piaget et Inhelder, 1981). This approach has guided important fields of academic investigation ranging from early research into human perception of the urban environment (Lynch, 1996) to more recent academic investigation into *naïve geography*[4] and virtual environments (Mark & Frank, 1996; Mark, Egenhofer and Hornsby, 1997).

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[1] See Friedmann (1987) for further analysis on his definition of a *social constructivist position* and Healey (1997: p.258) on knowledge and social interactive processes. Both approaches are derived from a philosophical epistemology, rather than genetic (empirical) epistemology.

[2] Piaget's major contribution to cognitive psychology is embodied in the notion that an *individual actively makes sense of the world rather than being merely conditioned by it* (Marshall, 1998).

[3] In social psychology this expresses a dynamic idea of group representation on a small scale, as opposed to the concept of collective representation in sociology, that deals with wide-ranging social groups: *'comment les individus et les groups s'approprient-ils le monde et quels sont les mécanismes psychologique et sociaux qui régissent leur relations et leur réactions à l'environnement'* (Bonardi et Roussiau, 1999: p. 17-18).

[4] See NCGIA at: http://www.geog.buffalo/ncgia further information and the interrelation between geographical information science, artificial intelligence, computer science, geography, developmental psychology and the behavioural sciences.

However, a wish to explore participatory planning practices, understood as a collaborative process of exchanging ideas that might, eventually, lead to the generation of new knowledge, implies focusing on social relations as the core analytical category. This is why our analysis of urban planning is centred on the interdisciplinary link between social spatial relations and socio-cognitive structures.

In adopting a genetic epistemological approach, which seeks to establish a multi-disciplinary relationship, we draw on Piaget's sociological studies,[5] where he addresses theoretical questions concerning *'the developmental mechanism which makes possible both the acquisition of available knowledge and the creation of new knowledge'* (Smith, 1995: p.1). Piaget also examines *'the inter-relations of the individual, society and rational knowledge'* and is thus in a position to address the central question of whether or not *'the logic of human rationality is individual or social'* (Smith, 1995: p.3).

According to Smith, Piaget's strategy in addressing these theoretical questions includes both a positive and a negative element. Regarding the negative element, there are two basic concepts - *egocentrism* and *sociocentrism*. The former refers to the human mind and is based on Freud's idea of the affective unconscious. Piaget *'shows that there is an intellectual unconscious which has a comparable but distorting effect'* (Smith, 1997: p.3). The second concept, sociocentrism, is centred on society and follow the Marxist sociological approach that *'society is marked by the corruption of true values by false values'* (Smith, op. cit.).

Smith maintains that the positive element in Piaget's strategy is *'to identify some of the conditions which would have to be satisfied by an account of the development of rationality'* (Smith, 1997: p.3). The conceptualisation of *intellectual cooperation* can be derived from the positive element in Piaget's strategy for addressing the question of the interrelationship between the individual, society and rational knowledge.

### 3.2.1 Intellectual cooperation

[5] These comprise Piaget's work during the period 1928-1960.

Our standpoint is that the exchange of thoughts and the construction of new knowledge are essential to understand social spatial relations within planning practices and how social actors might reach an agreement in processes of political decision making. The search for a constructivist approach to understand new forms of knowing and acting within planning practices raises another theoretical line of inquiry - *how can any exchange of ideas within the planning process be transformed into a regulated exchange of thought, and thus become a real form of cooperative thinking?*

In addressing the above question, one must look for the nature of the social relations, which the planning interlocutors agreed on or were intellectually satisfied with. When looked at from an epistemological Piagetian perspective, this is related to a broad theoretical conception of the relationship between reason, individual intelligence, and social life:

*'We believe that social life is a necessary condition for the development of logic. Thus, we believe that social life transforms the very nature of individual, making him pass from an autistic state to one involving personality. In speaking of cooperation, therefore, we understand a process that creates new realities and not a mere exchange between fully developed individuals'* (Piaget, 1995: p. 210).

Piaget's position arises from his conception of the interrelation between genetic epistemology logic and sociology. He stresses that the sociological problem in relation to psychology lays emphasis on the general question of explaining society, whether it be through *individual relations* or *collective relations* (Piaget, 1995: p. 145). He argues that this is a pseudo-problem: *'there are neither individuals as such nor society as such. There are just inter-individual relations.*[6] *Some of these do not change the mental structure of individuals, where others transform both the individual mind and the group. Among the latter, some lead to rationality, some do not'* (Piaget, 1995: p. 210).

Insofar as it deals with participatory planning practices and virtual environments, our study is concerned with the investigation of inter-individual relations that might not only change the mental structures of individuals but also transform the group in a rational way. This defines our field of interest here; it seeks to cut through the relationship between *logical operations* and *social life*, and focus on the interrelationship between *formal operations* and *social cooperation*:

*'Considered from the point of view of their psychological development, logical operations constitute the final equilibrial form of actions reached when they are "grouped" into mobile systems that are both indefinitely composable and rigorously reversible. Now, social cooperation is also a system of actions, interpersonal rather then simply individual, but actions all the same and consequently subject to the laws of action. One can say, therefore, that social actions that end in cooperation are themselves ruled by laws of equilibrium and they will, like individual actions, only attain equilibrium on condition of becoming organised into composable and reversible systems'* (Piaget, 1995: p. 145).

It is worth clarifying the four basic principles of Piaget's genetic epistemology theory - *action, autonomy, exchange model* and *normative intervention,* that account for the constructivist approach to intellectual cooperation. They distinguish between social co-operation (concrete operation) and exchange of thoughts (formal operation).

The first concept defines *action* as being the unit of his analysis. According to Smith, Piaget believes that this analytical unit *'is neither representation (as in cognitive science) nor practice (as in sociology) but action'.* Yet, *'to know an object is to act on that object by its assimilation to action-schemes'.* Further, *'there is a logic of action coordination and one-and-the-same logic coordinates actions at both psychological and social levels'* (Smith, 1995: p.12). Smith argues that one can formulate Piaget's definition of the empirical problem from this definition of the unit of analysis:

*'If knowledge is action on objects, where those objects are extent to both actual and abstract objects, the theoretical task is to identify the characteristics of those objects in their mental construction with due allowance both for psycho-social origins and for rational legitimisation. The empirical task is to gain evidence as to which properties of actual and abstract objects are, and which are not, embodied in the developing mind of the individual, or embedded in socially held beliefs and practices'* (Smith, 1995: p.12).

Piaget's second basic concept concerns intellectual *autonomy.* Smith states that, for Piaget - *'a real exchange of thought is liberating, permitting the individual to re-cast available knowledge into valid forms of knowledge, which is manifest both in the continual adaptation to new circumstances which are never identical and in the growth of human powers required in their coordination.'* (Smith, 1995: p.14) Further, *'intellectual activity requires the individual to think through, and to re-think with, collective transmitted concepts rather than to be passive recipients of the legacies of past generations. But this is possible only if the human mind has the capacity to think*

[6] See Piaget (1995: p. 136) for further analysis on the concept of interpersonal relationships.

*autonomously, that is, to act on the basis of reason rather than through the occurrence of causes and to engage in reasoning on the basis of formal rather than merely functional factors'* (Smith, 1995: p.15).

The third concept refers to Piaget's *exchange model.* Piaget claims that *'successful interaction depends upon the exchange of values (rules, signs, and concepts)'*, therefore, *'a rational successful exchange of ideas requires certain conditions to be met'* (Piaget, 1995: p.146). It requires that *'each partner to the exchange should have the intellectual powers to carry out the same operation as the other'* (Piaget, 1995: p.152). Consequently, Smith argues that after Piaget:

*'rationally successful exchange can occur only if there is a common scale of values, where the scale is used by each partner with due respect for both conservation and novelty. That is, two partners to an interaction should use one and the same system of signs and meanings, which system is conserved and used in a self-identical way through a train of thought'* (Smith, 1995: p. 16).

Smith makes a point of insisting that it is in this context that Piaget's notion *structure d' ensemble* (overarching structure) is to be understood (Smith, 1995: p. 16). Yet he states that this condition of successful exchange does not imply that *'there is one and only one set of norms by which that proposition is judged since either partner may have access to alternative normative systems'* (Smith, op. cit.). As a result, he stresses that *'the presence of such alternatives makes rational dispute possible'* and, it does not imply *consensus* either. The Piagetian position regarding the concept of *universability* is methodological rather than substantive:

*'(...) unlike those moral philosophers who use universability as a criterion of moral obligation, Piaget's epistemological claim is methodological: use whatever values systems you want provided each partner has the capacity to use the same system'* (Smith, 1995: p. 17).

The fourth basic concept relates to *normative intervention.* Smith states that *'Piaget's genetic epistemology makes the claim that norms have a history, which includes both social and rational elements. This history includes their origin in society or in the human mind'* (Smith, 1995: p.17-18). Yet he argues that *'central to normative intervention is both the capacity to use the same operation as any other individual on one's own account and also the capacity to substitute any one operation for any other in any possible system'* (Smith, 1995: p.18).

## Intellectual exchange and equilibrium of exchanges

When addressing the genesis of social relations that might lead to intellectual cooperation Piaget raises a central question - *how can any exchange of ideas be transformed into a regulated exchange, and thus become a real cooperation of thought?* (Piaget, 1995: p. 90)

Piaget argues that the equilibrium of exchanges has three necessary and all-sufficing conditions that can be summarised as follows:

(1) common scale of values: *'expressible using common and unambiguous signs. This common scale must, then, have three complementary proprieties:*
*(a) a language, comparable to the system of monetary signs in economic exchange;*
*(b) a system of defined notions;*
*(c) a certain number of fundamental propositions placing these notions in relation to each other, determined by convention'* (Piaget, 1995: p.91-92).

(2) conservation: *'agreements about real values and the obligation to conserve previously recognised propositions. In fact, if there is no agreement, there could be no equilibrium, and the discussion continues. On the other hand, if agreement is constantly put in question, there could be no equilibrium either. Without the intervention of rules, i.e. an obligatory conservation, the previously acknowledged validities would disappear with every new exchange'* (Piaget, op. cit.).

(3) reciprocity: *'previously acknowledged validities may be invoked at any time'* (Piaget, op. cit.).

Piaget maintains that *'these three conditions are only realised in certain types of exchange, which we call cooperations, as opposed to exchanges which are deviant, whether through egocentrism or constrain'* (Piaget, 1995: p. 92). Further, he states that *'equilibrium could not be attained if, due to intellectual egocentrism, the partners do not succeed in coordinating their points of view'*. Yet *'in this case the first condition is missing (common scale of values) as well as the third (reciprocity), and the second (conservation) cannot be attained, since obligation is not felt in either sides'* (Piaget, op. cit.).

In the case of intellectual relations where an element of constraint or authority intervenes, Piaget observes that *'the two first conditions seem to be met, the common scale of values is due to a sort of "fixed market", under the authority of tradition and usage'* (Piaget, 1995: p. 92). On the other hand, in the absence of reciprocity, the

obligation to conserve preceding propositions only operates in one direction. The absence of the third condition characterises what he described as *'a state of false equilibrium'*, in which the advent of free discussion is sufficient to cause a disruption. This is why Piaget states that the equilibrium, *'as defined by the three conditions described, is thus dependent on the existence of a social situation of autonomous cooperation, based on equality and reciprocity of partners, simultaneously detached from the anomaly of egocentrism and heteronomy of constraint'* (Piaget, op. cit.).

Piaget states that there is a distinction between the two concepts - free exchange of ideas and the intellectual exchange or cooperation:

*'In contrast to the passivity of free exchange, the notion of cooperation thus includes the double activity of decentration, with regard to intellectual and moral egocentrism, and liberation from the social constraints that such egocentrism causes or maintains. (...)*

*Autonomy, as opposed to anomy and heteronomy is, in fact, disciplined or self-disciplined activity, at an equal distance from inertia or forced activity. It is because of this character that cooperation implies a system of norms, unlike so-called free exchange, whose liberty is shown to be illusory by the absence of such norms. This is why true cooperation is so fragile and so rare in social conditions fragmented by special interests and domination, just as reason is so fragile and rare, in contrast to subjective illusions and the weight of tradition'* (Piaget, 1995: 92-93).

The equilibrium of exchange which is described is *'essentially, then, a system of norms rather than simple regulations'* (Piaget, 1997: p. 93). These norms constitute what Piaget defines as '*groupings which coincide with those of propositional logic itself, even though they do not presuppose this logic in their own creation'* (Piaget, 1997: p. 92-93).

Piaget goes on to argue that *'actions, in the course of becoming composable and reversible, and rising themselves to the level of operations, acquire the power of being inter-substitutable. The grouping then, is only a system of possible substitutions, whether within the thought of an individual (operations of intelligence), or between one individual and another (social cooperation, understood as a system of cooperations)'*. Further, *'these two types of substitutions constitute the general logic, both collective and individual, which characterised the form of equilibrium common to both social and individual actions'* (Piaget, 1995: p.94).

It is cooperation in this intellectual[7] dimension that transforms human reasoning, not only at an individual level but at a social level as well. This is why we believe Piaget's socio-cognitive approach might support an analysis of the social relations within participative planning, as well as determining whether or not these practices assist the development of new planning knowledge.

### 3.2.2 Collective decisions: social and cognitive conflict and consensus

With regard to our main theoretical question - how to increase citizen participation within planning practices - the above approach only addresses the part of the problem related to inter-individual social relations and cognitive development. True cooperation is fragile and rare in social conditions, because it is fragmented by the special interests of power groups, which lie at the heart of issues arising from social relations in participatory planning practices.

Our standpoint is that in the area of participatory planning, citizens have to reach a consensus in order for collective decision-making processes to occur. Hence, there is an additional question which has to be addressed - *how might individuals and groups come to agree about collective decisions?*

We define a socio-representational approach to frame the analysis of the socio-cognitive mechanisms, which collective decisions entail (Moscovici & Doise, 1994). However, unlike Piaget's genetic epistemology, it does not provide a theory of collective decisions, but rather, *'theoretical glimpses'* within a field of research which is viewed as an *'unknown territory in social psychology'* (Moscovici & Doise, 1994: p. 192). Moscovici and Doise highlight the incipient and experimental character of the researches in this field, while Bonardi and Roussiau (1999) stress the controversial aspects of research in this field.

#### Consensus and socio-cognitive conflict

[7] *'Dans la mesure, au contraire, où les individus pensent en commun, c'est-à-dire cherchent à se comprendre et apprennent à discuter, certaines règles d'objectivité et de coherence s'imposent à eux et constituent la logique. C'est la coopération, sous ce nouvel aspect, aspect intellectual et non plus uniquement moral, qui façonne ainsi la raison humaine et en fait un instrument de vérité, par opposition à la pensée individualle qui est avant tout recherche de satisfaction'* (Piaget, 1998: p. 72).

The question of socio-cognitive conflict and consensus, and the way they impinge on modern democracy, is a shared concern among the different social sciences. In simple terms, consensus can be defined as a basic fact of community life which is needed whenever *'people seek to associate together, act in concert and make decisions'* (Moscovici & Doisc, 1994: p.1). Usually this notion is associated with the idea of discussion as a method of settling conflicts, and it can be said that *'what effects consensus and makes it convincing is not the agreement itself, but participation by those who arrived at it'* (Moscovici & Doise, 1994: p.2).

Although *'the institution of consensus has existed throughout history'*, what is new about the changing conditions of modern societies, is that today *'consensus prevails over other means whereby individual attitudes and decisions are transformed into social ones'* (Moscovici & Doise, 1994: p.2). This leads to a number of questions - how does consensus arise? what are its various sources? how are inter-individual relationships expressed in their judgements and discussions?

Moscovici and Doise mention three concepts that are subsumed under the idea of consensus: choice, trust and reason. They claim that together these concepts are *'the signs of a bond between people, of a commitment born of convictions held in common, and above all in usages inherent in a modern democracy'* (Moscovici & Doise, 1994: p.5).

They argue that choice *'emerges from the comparison of opinions, and from the exchange of arguments for and against, as the sole possible chance not only to forestalling an error of judgement, but also of ending divisions and misunderstanding between the defenders of different position'* (Moscovici & Doise, 1994: p.3).

The concept of trust derives from Durkheim's (1978)[8] definition of consensus as a form of *'internal solidarity'*, which comes about when the parties involved reach a spontaneous consensus and lies in the sphere of value systems. Moscovici and Doise go further by drawing on Habermas' (1990)[9] definition of agreement and state that,

[8] Durkheim, E. (1978) *'La Division du travail social'*. Paris: Presses Universitaires du France. (as quoted in Moscovici & Doise, 1994: p.4)
[9] Habermas, J. (1990) *'Moral Consciousness and Communicative Action'*, tr. C. Lenhardt and S. W. Nicolsen. Cambridge: Polity. (as quoted in Moscovici & Doise, 1994: p.4)

*'what manifestly arises from external pressure cannot be considered as agreement'* (Moscovici & Doise, 1994: p.4).

The concept of reason comprises the idea that there exists an undeniable link between consensus and the use and cultivation of reason. It lies in the conception that *'a principle of intelligence exists whereby people associate together and attribute to themselves a form of power'* (Moscovici & Doise, 1994: p.5).

Moscovici and Doise argue that the unknowns in this equation are the basis and the conditions for consensus to be achieved. They oppose the classic theories of decision-making that have attempted to settle these questions on the basis of two general postulates:

*' - consensus is better arrived at if one can benefit from very precise information regarding its purpose and if very many individual are involved in discussing it;*

*- the normal tendency in a consensus is to arrive at a compromise: differences between individuals are assumed to be settle by concessions that draw them nearer to the mean point between their positions and distance them from extremes'* (Moscovici & Doise, 1994: p. 5-6.).

They claim there is a need for significant revisions of the classic postulates and for further analysis of the nature of collective relationships within decision-making, together with the development of a theory that concentrates on the analysis of *group'* social relations. Their approach involves the following changes to the two postulates stated above:

'- to preserve the first postulate concerning the rationality of decisions, although modifying somewhat: *especially highlight the rules for dialogue and interaction as the vehicle of choice, and as more important than the sum of participant knowledge. In other words, the emphasis will move from the competence of individual towards their relationships in a group;*

- to rephrase the second postulate: *'consensus is normally established, if nothing hampers discussion or the exchange of views, at one of the extreme positions preferred by the group. The group is less inclined than individuals to tone down conflicts and avoid differences, but more disposed to devote the attention they require to criticisms and the various viewpoints expressed'* (Moscovici & Doise, 1994: p. 15).

Moscovici and Doise maintain that the essential point, within their conception of the second postulate, is to reverse the commonly held view about the role of consensus, by introducing the idea of *polarization:*

*'it proposes consensus as a means, and even a method, of changing the norms and the rules of collective life. Its function is not to eliminate tensions or preserve an equilibrium between opposing propositions, but, on the contrary, to let them modify one another with the least amount of virulence, until a common element arises among them. Discord, far from representing failure or resistance, in the event, is the most valuable lever of change'* (Moscovici & Doise, 1994: p. 16).

Given the fact that modern democracy has institutionalised consensus in a number of areas, they argue that, although the function of committees and commissions is to agree on a solution, their true function consists much more in *'changing attitudes and time-hallowed rules and innovation'*, than reconciling opposing viewpoints. (Moscovici & Doise, 1994: p. 16)

An unconventional position is adopted in their conception of the relationship between individuals and groups in social psychology. (Moscovici & Doise, 1994: p.45) This conception sees the association of individuals as *'a unique network having the power to stimulate and overcome the inhibitions in their affective and intellectual qualities'* (Moscovici & Doise, 1994: p.36). They argue that *'if we wish to understand the nature of groups, it seems advisable to concentrate on the way in which they change individuals, rather than on their ability to aggregate individuals as parts of a whole'* and thus highlight *'the importance of participation as the act of committing oneself with others'* (Moscovici & Doise, 1994: p.42). This raises the question of finding out the meaning of group participation. The authors state that *'it defines an internal relationship between people who think, decide and act in the community when it spur them to do so, but from the sake of the community and in its name'* (Moscovici & Doise, 1994: p.48).

Hence, participation plays a fundamental role in collective decisions leading to consensus and is undertaken in different ways, depending on the form it takes - consensual participation or normalised participation. (Moscovici & Doise, 1994: p.61) In the first form *'no one individual is advantaged in comparison with the rest'*. Hence the agreement at which they arrived, *'transforms the conflict in as much as respective positions become alternatives in relation to the same purpose or problem, which is conceived of in an identical way'* (Moscovici & Doise, 1994: p.62). In the second form *'participation establishes relationships between certain individuals holding specific trump cards, but according to a certain procedure'* (Moscovici & Doise, op. cit.).

However, they point out that *'the choice between a consensual form of participation and the normalised form is a question not of preference, but of circumstances'* (Moscovici & Doise, op. cit.).

**Social representation and decision-making**

Moscovici and Doise conceptualise social representation as the outcome of a process to solve socio-cognitive conflicts. Socio-cognitive conflicts refer to situations which give rise to serious tensions, when *'one devises a plan to confront these alternatives and then to reconcile them and put an end to differences'* (Moscovici & Doise, 1994: p. 172). Hence, the outcome of the socio-cognitive process is to *'to clarify them and integrate them on a higher level, after which the members of the group see the problem in a different light'* (Moscovici & Doise, 1994: p.173). This means that *'the decision has the effect of transforming the representations of each individual into a social representation, which is the common basis sought after'* (Moscovici & Doise, op. cit.).

Moscovici characterise this representational system as being tri-dimensional and made up of (a) a set of information; (b) a general attitude that denotes the positions of the groups; (c) a representative field, a structure that organises, articulates and erects the hierarchies of the elementary units of information. (Bonardi & Roussiau, 1999: p.17-23)

Moscovici and Doise argue that the socio-cognitive conflict inherent in any decision taken in common, brings together two fixed tendencies. They aim at maintaining existing uniformity and agreement simultaneously, while changing them by imparting an original form to things and ideas. Hence, there is a dual process of social thought at work in the socio-cognitive conflict:

*'(...) this process can only be dual, in view of the opposing functions that it fulfils and the simultaneous use it makes of divergent and convergent thinking, the one the badge of innovation and the other uniformity'* (Moscovici & Doise, 1994: p.174).

They state that both kinds of thinking should be set in motion when reaching any decision, and add that:

*'To resolve the conflict by eliminating convergent thinking would be to abandon discussion and any choice made in common. To resolve the conflict by censoring divergent thinking would condemn*

*participants to routine, to stereotyping, to what is termed "groupthink". On the other hand to negotiate this conflict, which is both social and cognitive, is an arduous task'* (Moscovici & Doise, 1994:p. 175).

Finally, they claim that the collective decision that leads to consensus forms a close bond between individual change and consensus at a group level so that it is difficult to distinguish between the two levels. Their working hypothesis departs from the general and concrete factors that are present in the socio-cognitive conflict. (Moscovici & Doise, 1994: p.191)

They believe that the consequences of the task of decision-making go much further than those attributed to it: *'to deal with items of information, to harmonise values, and to reconcile divergent attitudes and interests'*. Yet, *'these are the outcomes of the links made between persons as soon as they begin to communicate and discuss together, and, above all, to commit themselves to a course leading to an agreement'* (Moscovici & Doise, 1994: p.191-192).

### 3.3 Online Planning: a new planning socio-cognition?

Our theoretical working hypothesis is that, owing to the nature of informational space, online planning practices imply a new paradigm for planning cognition which is based on the principle of social interaction. Whether or not online practices, informed by this new cognition, will lead to social change aimed at social justice, has up to now been an open question.

Planners today agree that urban planning should be a process of enabling citizens to collaborate in consensus building. As a result, a communicative rationality is becoming more important in modern planning than the conventional instrumental rationality. The professional approach of the latter has often been criticised as being technocratic, although previous experiences have shown that communicative/collaborative planning alone does not conform to conventional ethical planning principles any better. This means that collaborative planning must go together with adaptive rational planning (Voogd and Woltjer, 1999) and raises the question of a new planning paradigm that might inform a new planning cognition.

Discussions about the recent institutional experiences of building virtual cities and communities, illustrated the need for a dual socio-political project, which implies there are at least two simultaneous movements. The first is to fight against sociospatial polarisation within informational space, while seeking to ensure universal access to cyberspace at a local level. The second is to empower planning practices through the use of cyberspatial technologies aimed at grassroots community development.

Whether or not planners will find transformative answers to this central question will depend on their ability to combine political will with innovative ways of using cyberspatial resources to build new methods for participatory planning, within informational space. In our view, these methods must encompass a constructivist approach, which sets out from the basic premise that social action builds planning knowledge.

Cyberspatial technology, unlike traditional urban planning technologies, does not confine planners to using IT just as a tool in operating the spatial representation of actual urban environments. On the contrary, the uniqueness of advanced communication information technology allows it to have a direct influence on ways of thinking, acting and knowing, since its precise raw material is information. It thus allows power relations to be redefined through digital interactions.

This enables planners both to use IT as a tool to operate rational planning information and, on account of networking logic, to promote social interrelations that lead to intellectual exchange and cooperation, on a community scale. It implies a move away from the traditional discursive approach of participatory planning practices, which revolved round a simple free exchange of ideas, towards the enhancement of citizens' socio-cognitive activities through digital social interactions.

Our main theoretical argument is that, the transformative potential of online planning lies in the unique character of cyberspace. For the first time in planning history, planners are in a position to use IT tools to work with digital social/spatial relationships. This position comprises both forms of social interaction: inter-individual and collective/group, simultaneously. Hence, it allows one to move away from the traditional instrumental rationality, of using IT just for representation, simulation,

modelling and control of social activities in real urban environments, towards a communicative rationality.

It seems reasonable to hypothesise that a more *radical* use of cyberspatial technology for new collective ways of social reasoning, creates new forms of planning knowledge and new methods of social learning and might reverse the traditional ways of learning within the planning process. With regard to grassroots practices, it would involve the active participation of the social actors, both in taking action on concrete urban conflicts in the short term and, in fostering *intellectual cooperation* through social learning and digital interactions. In this way, they would be able to build new social relationships aimed at transforming social spatial environments in the long term. This process might eventually allow the growth of individual and group *autonomy* and lead to the development of new collective *norms*. Moreover, it might define more inclusive social forms of *decision-making* and *consensus building* for the management of urban environments aimed at social justice.

### 3.3.1 Socio-cognitive structures and participatory planning theories

With regard to participatory planning, the definition of the theoretical object involves urban social relationships and a consideration of the ways in which citizens, by acting together, can manage their concerns on how to share space and time on a collective basis (Healey, 1997). This definition requires social theories to back up the investigation of how these social spatial forms act together. If we seek to define an epistemology of social learning for planning practices, interdisciplinary links need to be established with social and spatial disciplines, as much as with socio-cognitive disciplines.

The interdisciplinary link with social theories of knowledge has led to the development of at least two main lines of theoretical concern within participatory planning. The first of these is related to the theoretical approaches that lead to the conceptualisation of new forms of *radical planning*. Three complementary approaches have been examined - *ethnographic*, *post-Euclidean* and *multicultural*[10], with the aim of achieving a re-conceptualisation of a planning praxis that lays stress on social learning in connection

[10] See Chapter 2: sub-section 2.2.3.

with insurgent citizenship. The approaches are described as radical since they aim to define new ways of *knowing*, *being* and *acting* through social spatial relations within planning practices. They share a common understanding of the role of planners - to work towards the structural transformation of inequalities in social relationships, distribution of power, opportunities and resources and, thereby empower those who have been systematically disempowered.

The second line of theoretical concern, is that of theories of knowledge and includes the work of a range of planning theorists who, although not necessarily pursuing the same political project, have been engaged in outlining appropriate practices for *intercommunicative planning.*[11] This line has been described as a communicative (or collaborative) turn in planning theory. This communicative shift in planning practices follows Habermas' (1984) theoretical *communicative rationality* conception[12], together with other theoretical contributions from the postmodern and antirationalist debate, as well as an increasing number of ethnographic studies in planning practices (Healey, 1996).

The socio-cognitive approach to planning theories shares the same theoretical concerns about the constructivist conceptualisation of the development of knowledge, inasmuch as communicative rationality also implies a constructivist approach. They both centre on *action* as the unit of analysis for the development of knowledge. However, both approaches derive from different epistemological positions (genetic epistemology and philosophical epistemology), which imply different conceptions of *logic* and *reasoning* and their role in the development of knowledge. This means that eventually they will comprise separate constructivist approaches.

The essential distinction between the two approaches lies in their conception of knowledge. Communicative rationality relies on the process of collective argumentation and reasoning discursively by establishing principles of validity and knowledge (Healey, 1996). This illustrates the importance of power relationships,

[11] *'A communicative conception of rationality, to replace that of the self-conscious autonomous subject using principles of logic and scientifically formulated empirical knowledge to guide actions. This new conception of reasoning arrived at by an intersubjective effort at mutual understanding. This refocuses the practices of planning to enable the purposes to be communicatively discovered'* (Healey, 1996: p.239).

[12] *'Habermas' communicative rationality has parallels within conceptions of practical reasoning, implying an expansion from the notion of reason as pure logic and scientific empiricism to encompass all the ways we come to understand and know things and to use that knowledge to act'* (Healey, 1996: p.243-244).

within the ideological arena, in overcoming social conflicts on an urban scale. The genetic epistemological approach, in contrast, investigates the internal socio-cognitive structures that promote knowledge through inter-individual social relationships. Logic is not an external pre-condition but an internal intellectual development achieved through inter-individual social interaction. Collective interactions are seen as an extension of inter-individual interactions and are made up of dynamic processes of equilibrium, either in the exchange of thoughts or in collective decisions aimed at consensus-building. The emphasis here is on socio-cognitive relationships as a way of overcoming social and cognitive conflicts, and thus comprise what may be called a *socio-cognitive rationality.*

This is an important epistemological distinction, especially given the criticism of two key concepts embedded in the communicative rationality approach: *reason* and *consensus.* It has been argued against this conception of practical reasoning that, *'communicative action holding on to reason, retains the very source of modernity's dominatory potential'* (Healey, 1996: p.243). With regard to consensus, the main criticism is that through collective communicative action we can arrive at consensual positions, *'whereas contemporary social relations reveal deep cleavages of class, race, gender, and culture, which can be resolved only through power struggle between conflicting forces* (Healey, 1996: op. cit.).

Our view is that the constructivist socio-cognitive approach provides an understanding of the internal dynamic of the development of knowledge, either inter-individually or collectively. If social power relations are defined as the main focus of participatory planning and, knowledge as the central issue of power relations in the information society, then social power struggles might be enhanced through the development of knowledge within planning practices. From this perspective, consensus-building can also be seen as a dynamic outcome of social and cognitive conflicts, supported by collective decisions and empowered through social learning practices within the planning process.

The genetic epistemology approach shows that there are basic methodological distinctions that need to be observed when analysing social relations in the socio-cognitive area. These are about defining the scale of social interactions which were

analysed, either on an inter-individual or collective basis. As regards the former, attention was drawn to the conceptualisation of *cooperation* (Piaget, 1995), which makes a clear distinction between the *action of operating in common* (social co-operation or, concrete operation) and the *exchange of thoughts* (intellectual cooperation or, formal operation). With regard to collective/group relationships, importance was attached to the definitions of social and cognitive conflict and the role of divergent and convergent thinking in collective decision-making aimed at consensus and based on shared social representations (Moscovici and Doise, 1994).

Our main argument is that planners have been unable to deal with questions of social justice and difference because planning theory has systematically concentrated on supporting appropriate participatory methods for *co-operation* (acting in common) in order to fulfil the needs of the project to build local democracy, insofar as these methods need to take into account the social, economic, cultural and political constraints of the planning process. However, the social learning 'turn' in planning theories has created a need for a new paradigmatic shift towards planning methods for the development of *intellectual cooperation* (formal operations) and, the development of new urban planning knowledge on a community level.

So far, it seems that most participatory methods, even when retreating from scientific rationalism, have, at best, allowed the development of social *co-operation* (concrete operations). Usually participatory praxis does not aim at the development of true cooperation (intellectual exchange) among the diverse social actors involved in the planning process at a local level. Although planning practices may lead to access and exchange information through a wide-ranging debate, this does not necessarily imply the empowerment of the social actors involved in this process. Furthermore, these methods usually oppose the development of new knowledge through intellectual exchange.

This is particularly the case in a situation characterised by the dominance of the scientific rationality of urban planning knowledge and the different levels of knowledge, social constraints and the inequality of power relations, among the social actors and groups involved in social and cognitive conflicts on a community scale. Yet participation in collective processes of decision-making are as difficult to establish as

increasing shared representation and new forms of consensual participation within planning practices. For these reasons, when new participatory planning methods eventually succeed in helping to overcome social and cognitive conflicts on an urban scale, they are usually achieved through the dominance of convergent thinking, which provides little scope for innovation or, structural social change within the collective processes of decision-making.

Although radical planners share the same general objectives[13] and have defined a common goal in the new paradigm for planning theories they have drawn up, the issue of outlining new planning methods to inform new planning practices remains an open question. In our view, the challenge of such a task is that these new methods seek to integrate two basic areas of planning practices - political (concrete operations) and technical (formal operations). They need to encourage planners to engage in a transformative style of politics for 'inclusion' that might enable them to articulate the antagonistic and yet dialectical relationship between the State and the insurgent practices of mobilised communities (Friedmann, 1998). On the other hand, they must allow the planners to add new ways of learning to their traditional scientific and technical skills (Sandercock, 1998). This means that they might help to extend the ideas of planning beyond the planners' preoccupation with execution and design (plans and policies) and, to start to plan what is possible - an ethnographic present (Holston, 1999). In our view, the socio-cognitive rationality approach, together with constructivist social learning conceptualisation, assigns that it is the *reflexive reasoning* about concrete operations that might inform the development of formal operations through dialectical interrelationships between *action* and *reasoning*.

It should be pointed out that the interdisciplinary endeavour is not something new within the debate about new approaches to planning theory. A great deal of academic criticism must be considered when pursuing this field of intersection. Much of this is directly concerned with the behaviourist approach within social psychology. This approach focuses on the analysis of the social dynamics of group processes (Healey, 1997: p. 257), which usually do not take into account the potential social and cognitive conflicts these processes entail, whatever their internal dynamic. There is an important intersection or field of academic interdisciplinarity to be explored in the area of social

[13] *'The will to create a democracy at a local level that values difference with social justice'* (Friedmann, 1998).

and cognitive conflict, and this can be brought about through a *constructivist socio-cognition* approach.

To sum up, we support the theoretical proposition that, a re-conceptualisation of *constructivist social learning* based on the *socio-cognitive rationality* approach, might serve to inform the *dialectics of new planning practices* aimed at *social change*, within the *network society*. The concepts of *intellectual cooperation* and, *social cognitive conflict and consensus* are the central theoretical categories to support this methodological shift in planning practices.

### 3.3.2 Socio-cognition and cyberspatial participatory planning

In order to address the question of planning praxis within cyberspace, a basic question should be raised - *how might this interdisciplinary approach improve participatory practices within informational space?*

Our analysis focuses on how urban planners are developing participatory practices within cyberspace. A methodological distinction is made between this praxis in terms of two objectives: a *traditional* approach based on the production and exchange of digital information; and, a *new* approach based on the exchange of ideas and social interaction within informational space.

The *traditional* approach employs the metaphor of the real city - it exists entirely in software, which has the visual and often organisational form of real cities and has been discussed in relation to the rise of virtual cities and virtual communities.[14] The potential of these virtual spaces for social interaction depends on the levels of connections they allow both inside the virtual world, and with the outside world.

The main criticism to this approach is that it still relies mainly on the planner's expertise. Planners are still the key actors in the process of building these digital urban spaces, where they might exchange the available information with the users (citizens). It comprises a one-way intellectual relationship (an egocentric interrelation). The feedback of the user (citizen), whenever allowed, is processed as an input to the

[14] See Chapter 2: sub-section 2.3.1.

system, and must be analysed and translated by the producers and managers of the system (planner), before being incorporated as new knowledge. In this way, social struggle and power relations are kept outside informational space and leave little space for social change. The resulting digital spaces generally fail to take advantage of the central features of cyberspace - interaction and the networking logic.

The *new* approach comprises more recent developments of cyberspatial technologies.[15] These virtual spaces may have no analogue in real urban spaces. Their construction is based on the use of cyberspatial technologies to promote online social interaction within informational space and their design and construction aim at a full use of cyberspace features.

It entails a paradigmatic shift in the traditional ways of *knowing*, *being* and *acting* through digital relationships that envisage the rise of a new culture, the *culture of real virtuality*. These new spaces might bring about the rise of social struggle, although under the dominance of the *networking logic*.[16] They represent a very recent field of investigation and academic experiments that have been supported, to some extent, by the communicative paradigmatic turn in urban planning and a wide range of initiatives for investigating new ways of communicative/collaborative online planning.

Another methodological distinction that needs to be considered on the question of how planners are developing participatory planning within informational space, centres on the objectives of these applications. These are concerned with the planners' professional commitments and might cover at least three types of IT uses: academic and scientific research, urban governance and community development.

The academic world acknowledges the value of cyberspatial technology in scientific research and the development of new knowledge, as well as the designing of new technological applications for urban planning. The urban governance domain comprises institutional uses, as well as practical and professional initiatives for building virtual cities to extend public services to the digital world. The community development field is related to the rise of virtual communities and the development of

[15] See Chapter 2: sub-section 2.3.1, on virtual reality and the Internet.
[16] See Chapter 1: section 1.3.

community information networks.[17] As regards participatory planning, our focus is on the use of cyberspatial technologies for the development of placed-based (or grassroot) virtual communities.

It is worth pointing out that these are basic methodological divisions, as the different fields of planners' action within cyberspace might overlap. They may also vary in accordance with the planners' professional, social and political insertion within participatory planning practices. Our proposition of a *constructivist socio-cognitive* approach for the conceptualisation of new methods of *cyberspatial social learning* focuses on the methodological problem of the social and cognitive interrelationship between planners and citizens, through these new digital environments.

This is also linked to the work of planners (practitioners and/or researchers) engaged in participatory planning practices, either within local government institutions and/or community-based organisations. While taking account of the whole range of social actors involved in this process, our interest is in the work of planners engaged in the *radical* project of building local democracy, throughout the social construction of new ways of *knowing*, *acting* and *being* together with the movement of *insurgent citizenship*.[18] Although their embryonic character makes it difficult to gauge their full potential for community empowerment, recent academic research suggests the potential of the constructivist cognitive approach for informing the use of cyberspatial technologies for community development (Shaw and Shaw, 1999).

The present theoretical proposition encompasses a new social learning paradigm to support a dialectical process of exploring digital social interrelations, which might allow one to learn from the real world, while building up new knowledge through social interaction in the real world. An attempt is made to achieve enduring social change through this whole dialectical process.

Social interrelations in the area of genetic epistemology must meet three conditions to maintain a successful equilibrium of exchange: *common scale of values*, *conservation* and *reciprocity* (Piaget, 1995). With regard to participatory planning practices, this

[17] See Beamish (1995) for further discussion on community networks.
[18] See Chapter 2: sub-section 2.3.2.

implies that the social actors involved in the process of social learning would have to meet these conditions in order to foster intellectual cooperation and create new knowledge.

Our central argument is that, the use of cyberspatial technologies might allow the creation of the necessary conditions required for the equilibrium of intellectual exchanges. It could start by exploring the potential for building a common language, which would embrace the use of cyberspatial technologies to communicate the diversity of social representations. This might throw light on the social and cognitive conflicts among the different groups involved in planning praxis. Cyberspatial technologies would also enable us to work through parallel inter-individual and collective social interactions within the same digital environment. For these reasons, a constructivist social learning approach might help to work with conflicting social representations within cyberspace, and construct a new common scale of values on a collective basis.

The conceptualisation of a constructivist social and cognitive learning process for cyberspatial planning practices, implies that the social actors involved in this process should aim at developing new forms of intellectual exchange or cooperation. This means, too, that the social actors must be engaged as active social producers of virtual spaces for social interaction, either inter-individually and/or collectively.

This social and cognitive paradigmatic turn in planning practices means some important pre-conditions have to be considered. They include three main categories of infra-structural conditions on a local (neighbourhood and city) scale:

- political - open and universal[19] access to cyberspace together with social structures of local grassroot community organisations;
- social - accessing social and cultural public services (schools, community centers, public libraries, etc.) with the social structures of grassroot community organisations;
- digital - accessing good quality digital resources, hardware, software and network connection.[20]

[19] Universal access concerns connection and affordability, open access involves issues of easy-to-use interface, interoperability, security, privacy and usability (Beamish, 1995).

The theoretical conceptualisation of these new methods of social learning essentially differs from the traditional approach in participatory planning practices, either in real urban spaces or virtual spaces. They include four analytical categories: the role of the social actors; the paradigm definition; the participatory planning learning context; and, the methodological model.[21]

Figure 3.1 summarises the differences between the main attributes of each category, in accordance with the two different approaches to social learning in participatory planning processes on a local scale.

**Fig. 3.1 - Social Learning in Participatory Planning Practices**

| | **Traditional social learning** (instrumental rationality) | **Constructivist social learning** (socio-cognitive rationality) |
|---|---|---|
| **Social actors' role:**<br>- planner<br>- citizen | agent<br>recipient | activator/adviser<br>agent |
| **Paradigm** | transmission of knowledge<br>exchange of information | construction of knowledge<br>exchange of thoughts |
| **Planning context** | pre-defined through external criteria (usually technical) | defined by citizens every day life experiences and needs |
| **Methodological model:** | | |
| - who define the problem? | planners/ technicians, politicians | citizens and planners individually and in co-operation, at the same time |
| - whom does it satisfy? | governmental pre-established roles | citizens' needs, wishes or curiosity |
| - decisions | hierarchical, top-down | heterarchical, bottom-up |
| - definitions of rules, directions and activities | imposed by governmental authority | established by the group: consensus between planners and citizens |

While in the traditional approach the planner has control over the planning process and the citizen is the mere recipient of urban planning information, within the constructivist approach there is a reversal of roles. The citizen is the agent, the producer of planning information and by reflecting on this information, the producer of new knowledge. The planner on the other hand, changes his/her position in order to

[20] See Chapter 1: sub-section 1.4.1.
[21] This model was inspired on the constructivist learning process applied in education (Fagundes, L., 1999).

use his professional skills to activate and stimulate the social and cognitive structures for the development of social and cognitive interaction required in the learning process.

Given the role of the social actors involved, for a constructivist process of social learning to take place within participatory planning, what is needed is first the political commitment of the social actors, who must be involved in the same political project for social change. Second, they must clearly define their objectives, the planning context and, the scale of social interrelations in which such a process might succeed.

In our opinion the first objective in any process of constructivist social learning within planning practices, must take into account the development of a common language. Furthermore, the social actors should be able to work through inter-individual interrelations on a neighbourhood scale. This is one of the main reasons why the use of cyberspatial technologies in participatory planning can make a difference. Although processes of constructivist social learning within participatory planning might succeed without the use of cyberspatial technologies (examples of this can be found in the history of planner activists)[22] our objective is to investigate how the use of cyberspatial technologies might enhance, generalise and disseminate these experiences.

It is necessary to distinguish between the role of the planner as an *activator* from the socio-cognitive viewpoint, and from his role as a community *activist*. While the activities of planners as community activists usually have a political and instrumental slant (an action to achieve an end), the role of the planner as an activator in social learning is more concerned with his/her ability to mobilise and organise socio-cognitive inter-individual interactions. Both roles are not exclusive, but rather complementary within participatory planning contexts.

Constructivist social learning in cyberspace also involves commitment to a political project and it remains an open question whether or not these new research and advanced information communication technological developments will embrace new

[22] See Sandercock (1998) for a description some examples.

paradigms of knowledge development that might enhance planning practices aimed at social justice.[23]

In our view, the answer to this question lies in being socially constructed within the context of power struggles in the network society. If we wish to take an active part in this, we must be aware of the challenges we have to face. This is why, by adopting an epistemological social and cognitive constructivist approach, we seek to learn from the praxis, which is the goal of our empirical investigation in the chapters which follow.

### 3.4 Theoretical Propositions

Our main theoretical proposition is that urban planning practices, aimed at social change within information space, entail a paradigmatic shift which revolves around two concepts: *knowledge* and *participation*. This shift has introduced an epistemology of social learning to support participatory planning practices which help in the acquisition of existing knowledge, as well as the creation of new knowledge. This explains why in the course of this chapter, attention has been drawn to a *socio-cognitive constructivist paradigm* to inform our empirical analysis of participatory planning experiences within informational space.

The main analytical category to these two concepts is *social relations,* which encompass the study of *inter-individual relations* and how they might change *the mental structures* of *individuals* and *groups.* The concept of *intellectual cooperation* was explored with a view to identifying the socio-cognitive structures that might enable inter-individual relations to transform the mental structures of individuals and groups in the process of knowledge building. As regards participation, our focus was on the notion of *conflict and consensus* which were examined to identify the socio-cognitive structures that might inform the processes of *collective decision-making.*

Our argument is that the constructivist paradigm for social learning in participatory planning processes has allowed some successful local experiences to take place worldwide (as in the Porto Alegre Participatory Budget scheme) even without the use of cyberspatial technologies. However, if we search to define these practices within

[23] See Chapter 2.

informational space, the constructivist approach is a sine qua non for the participation and social inclusion of the disempowered. The reason for this lies in the nature of informational space, in which the raw materials for social construction are knowledge and participation.

### Towards a multidisciplinary approach

In the first part of this thesis, an attempt was made to form a comprehensive theoretical framework to discuss the interrelation between cities and the information process. A multidisciplinary approach was adopted that centred on the analysis of three theoretical dimensions and their interrelation with information technology: urban space, urban planning and socio-cognition.

By starting out from a broad conceptualisation of the *information technology revolution paradigm,* we sought to define the main concepts to elucidate how society is changing under the informational mode of capitalist development, and how this is occurring within a transitional phase of capitalist expansion on a global scale. We argued that these changes can be explained by examining a new social form, the *network society*; a new culture, the *culture of real virtuality*; and a new spatial form - the *information space*.

Given the complexity of the analysis of this new spatial form, Chapter 1 drew a methodological distinction between the *problematic* and the *practical* dimension of the *information space*. Hence, an analytical, as well as a descriptive approach was required. The focus of the analytical approach was the debate about the *rise of the network society*, and employed three important concepts: *networking logic, real virtuality* and, *networks of social change*. The purpose of the descriptive approach was to characterise the interrelationship between the physical and representational dimensions of the network society. This was carried out through a conceptualisation of a *virtual geography* approach, which comprised a typology of spaces/places' domains: *cspace, cyberspace* and *cyberplace.*

Our first theoretical preposition was that the social construction of informational space is being shaped under the dominance of the informational mode of capitalist

expansion. The *networking logic* is subservient to this dominant mode of social concentration and exclusion, as well as undergoing spatial polarisation and segregation on a global scale. Three analytical concepts were employed to explain how this logic operates: *space of flows, culture of real virtuality* and *networks of social change.*

The first analytical concept, *space of flows,* comprises the dominant spatiality organised around the network of communication. Its main attribute is *lack of physical contiguity.* This is related to the notion that *social practices* within this new spatiality reside in the electronic material support of simultaneity and do not rely on physical contiguity, which constitutes the domain of *virtual geography.* The second concept, the *culture of real virtuality* concerns the production of *new cultural texts* within this new space *(cyberspace),* the main attributes of which are - inclusiveness, comprehensiveness and interactivity. Despite these qualities, it was argued that the dominant logic results in fragmentation and segregation of cultural codes, through the dominance of the cultural texts of the global elites. However, the third concept, *networks of social change,* allows us to understand the dialectical process of social change which operates through power relations and social struggles within this new spatiality, on a local scale. Power relations are concerned with the ability of people to devise new cultural codes aimed at changing the dominant logic of social and cultural exclusion within the network society.

Chapter 2 added another element to this framework, the interrelation between urban planning and information technology, with a sharp focus on the role of participatory planning practices within informational space. The same methodological path was followed so that, a distinction could be made between the *problematic* of urban planning and the *praxis.* The focus of this analytical approach relies on urban planning theories that bring about a paradigmatic shift. It involves moving away from the traditional *instrumental rationality* of the rational comprehensive model of planning, towards a *communicative rationality,* encompassing a communicative action model of planning, in an attempt to deal with *social justice* and *structural social inequalities* within urban spaces.

The main analytical concept which is required to account for these changes, is *social spatial relations* as seen from the perspective of the *power relations* category. This

does not only apply to urban spaces but also, to the new spatiality within the network society - the *space of flows* (*cyberspace*). Hence, power relations are also about the ability of people (specifically the disempowered) to devise these new cultural codes. As we pointed out, the State has an important role to play in ensuring that the right to social and electronic infrastructure, as well as to support participatory planning practices which can lead to the implementation of this social/political project on a local scale. The analytical concepts required for the study of these new social spatial relations within urban planning are *grassroots community networking* and *insurgent citizenship.*

Two separate but interrelated descriptive approaches were employed to deal with the participatory planning praxis. The first concerns the interrelation between the information technology approach for building virtual environments, which might lead to meaningful social relations, and the role of urban planners in the construction of cyberspace and cyberspatial planning practices. The second introduces the idea of a paradigmatic shift in the direction of social learning within the process of building virtual environments and new cultural codes aimed at social change. This leads us back to the *socio-cognitive constructivist paradigm* for planning practices within informational space, as defined in this chapter.

It is hoped that this multi-disciplinary approach can be applied to the empirical analysis of the information process in the context of the network of Brazilian cities and the case study of Porto Alegre.

*"Work on the urban cannot limit itself merely to recording what has been produced. We must also look ahead and propose things."*

*Henri Lefebvre (1996:p.211)*

# Part II – The Context of Brazilian Cities Information Network

Chapter 4

# Participatory Planning and the Information Process in Brazilian Cities: the case of Porto Alegre

## 4.1 Introduction

The first part of this thesis outlined the theoretical arena of a research strategy which embraced a multidisciplinary approach to the problem of the ways cities are being changed by the impact of the information process and to the way urban planning practices are dealing with these changes. This led on to a theoretical debate which centred on an analysis of these phenomena in North American and European cities where recent historical developments and the internal dynamic of the process have started to show signs of their impact.

In the case of Brazilian cities, two important dimensions of the same phenomena need to be analysed - the global and the local. The first refers to the fact that the information process is a global process and can be observed within cities worldwide in accordance with their position in the global network, although with different characteristics and varying degrees of intensity. Analysing its specific characteristics requires an approach that also examines the macro scale of the process of economic and political re-structuring in Brazil within the global context. The second dimension involves an analysis of the information process from the standpoint of urban planning. Informational space is largely concerned with social spatial relations, rather than physical spatial relations, particularly in the case of Brazilian cities, where the information process is still in an embryonic stage.

The aim of this second part is to analyse the particular context of the network of Brazilian cities by starting out with the macro dimension. A brief review of the main aspects of the process of political and economic re-structuring which Brazil is undergoing, is carried out to establish a link with the rise of the information process. This comprises the empirical arena of this research strategy which attempts to place the rise of informational space within the broad context of the present social, political and economic re-structuring of Brazilian society and highlight the particular features of this new space on a city scale. It brings out the ways in which urban planning

policies are dealing with these changes on a local scale. Chapter 4 establishes a relationship between the rise of informational space in the broad context of planning practices within Brazilian cities and the particular context of participatory practices in Porto Alegre.

This chapter is divided into three sections. The first section outlines the general empirical field and raises the main challenges facing urban planning and the management of Brazilian cities, in the global context of the information process and the local context of informational space. Following this, the particular empirical setting is defined through an account of the special features of the participatory practices that single out the case of Porto Alegre from the network of Brazilian cities. Stress is laid on the need for a qualitative approach to the investigation of the link between the use of information technology and the participatory processes taking place in Porto Alegre.

## 4.2 Urban Challenges in the Peripheral Nodes of the Global Network

The relationship between cities and information technology is explained by the idea that the global network of cities can be related to the urban, political economic approach, and cities are considered the nodes of the global economy. The informational/global economy is organised around command and control centres that encompass the *nodes of a global network.*[1]

The urban challenges in the peripheral nodes of the global network of cities can be faced by establishing a link with the political economic approach, within a macro scale of analysis. The theoretical concepts and analytical categories related to the concept of the *network society* act as guidelines that enable us to hold two ideas regarding the peripheral position of Brazilian cities in the global network.

The first concerns the concept *network* that derives from Castells' theory of the *network society.*[2] This is the notion that, the dominant functions and processes in the information age are organised around networks under the dialectical dominance of the *network logic.*[3] The second idea relates to the constitution of the global network of

[1] See: Castells (1996: p.66-150); Graham and Marvin (1996: p.124-170); and, Kitchin (1998: p.59-61).
[2] See Chapter 1: sub-section 1.1.3.
[3] See Chapter 1: sub-section 1.1.5.

cities and the command and control centres within the network structure. In the case of the network of cities, these centres are called *global cities* (or *megacities*).[4] They comprise the new spatial form of the emerging informational society and are cooping up in a wide range of social and geographical contexts. The dominance of the network logic leads to a spatial polarisation in some nodes/centres of a few countries. Inside each country, the same networking logic links regional and local centers. The result is that the whole system becomes connected at a global level (Castells, 1996: p.99-103).

The notion of peripheral nodes within the global network of cities thus relates to new aspects of the relational distance between nodes. Peripheral nodes consist of cities that occupy positions at lower levels of connection within the global network, either in a country, a region or a local sphere. This process has led to a new geography of centrality and marginality (Sassen, 1994: p.119).

The morphological characteristics of these networks are related to the empirical observations of the ways in which the new economy of the information age operates (Castells, 1996: p.81). Power relations among cities on a global scale are related to their ability to establish high levels of networking connectivity and thereby position themselves in the global network. This complex dynamics of the new global economy has created a new role for local governments.

Two important factors should be taken into account when analysing the characteristics of the peripheral position of Brazilian cities within the global network. The urban political economic approach has to be considered from a global perspective so that the boundaries of its peripheral position in the global network can be fixed. This implies glancing at the context of the macro re-structuring process of the Brazilian economy, with regard to the rise of the information process. At the same time, the specificity of its internal structure and dynamics must be examined to distinguish the different positions of cities within the country network.

[4] See: Sassen (1991 and 1994); Castells (1989 and 1996); Perlman & Hopkins (1992) and Borja and Castells (1997), for further analysis on global and/or megacities.

### 4.2.1 Limits of the political and economic restructuring and the rise of the informational space

The information process is defined as a global phenomenon which has evolved from the transitional phase of global capitalism towards an *informational mode of production* Castells (1996: p.66-92). Setting out the boundaries of informational space in the Brazilian context, meant clarifying the factors that imposed serious barriers to the incorporation of Brazil within the new global/informational economy. Our goal here is just to give a brief idea of the global scale of these problems as far as they affect the focus of our analysis, which is the urban social and cognitive conflicts that are taking place on a local scale, and how planning practices are dealing with them.

#### The political and economic restructuring strategy

The empirical evidence regarding the informational economy and globalization in Latin America stresses the subordinate position of these countries as a result of the process of restructuring monetary policies that was designed to deal with the debt crisis in the 1980s. (Castells, 1996: p.119-130) Brazil, like most other Latin American countries, had to spend its earnings on meeting its international financial obligations. These policies had a serious impact on the process of economic integration and created a technological gap that hampered the competitiveness of an export-oriented economic model and has had devastating social and environment effects. (Castells, 1996: p.115-131)

The 1990s turned out to be a critical period in the restructuring of the relationship of Latin America with the new global economy. In the case of Brazil, this period led to political and economic turmoil, followed by a number of unsuccessful monetary plans combined with hyperinflation that ended up with the unfolding economic and political restructuring process of President Cardoso. The social cost of this last monetary political strategy is still being assessed. There are real signs that Brazilian civil society has been maturing throughout this period of political and monetary ups and downs. Both civil society and social power relations have been internally reorganised, through the restructuring of the democratic process in the 1990s. The citizens have started to learn to fight for their rights and oppose top-down decision-making processes.

Castells draws attention to the role of the Brazilian process of restructuring with regard to the future of Latin America and its actual form of incorporation into the informational/global economy. Even though the country has the potential to be the leading Latin American power in the process of getting re-integrated in the global/informational economy, it must have the political will to combat structural, social and economic inequalities. (Castells, 1996: p.132)

**Fig. 4.1 - Brazil's geographical position in the Americas**

The structural contradictions of Brazilian society have deep historical roots. In our view social conflicts should be faced on a local scale, within the political arena, and should involve carrying out long-lasting grassroots projects, supported as far as possible by the State on a global and local scale. This question entails complex social, political and economic processes that have just started to unfold in the recent period of re-democratisation and can only be brought about by devising a utopian political project, within which informational space might have a strategic role to play in the long term.

## The information communication technology strategy

In Brazil, as in most Latin American countries, the main policy for dealing with strategic sectors, such as telecommunications and information technology, has been to privatise State companies. Castells adverts that privatisation processes are not developmental mechanisms, per se, but rather prerequisites for economic growth. (Castells, 1996: p.89-90)

The recent history of telecommunication and information technology policies in Brazil can be divided into two distinct phases. The first covers a period of 20 years (mid-1960s up to mid-1980), when a strong centralised policy was imposed by a military

government, with control over the national telecommunication sector and development of information technology.[5] The second phase, which covers the recent period of nationwide re-democratisation (i.e. from mid-1980s onwards), has been characterised as a period which witnessed the deregulation of markets and the privatisation of public companies.

The present restructuring of the telecommunications system has tended to follow a market-orientated strategy. It involved the reorganisation of the 27 Brazilian State companies and aimed to extend the modernisation of the system to the country as a whole, by responding to consumer demand. It followed a pattern of regional polarisation and highlighted the already huge social spatial inequalities within the network of Brazilian cities.

The figures for 1997 showed there had been a low penetration level with regard to telephone lines, which increased from 2 million logged in 1972, to 16 million in 1997. This means a fixed-line density of around 11 % of the Brazilian population in 1997. The goal of the new national and regional strategy is to raise fixed-line density to 24 % by the year 2003. Cell phones, on the other hand, numbered only about two million in 1997, while the privatisation process is expected to increase this number to 17 million, in the same period.[6]

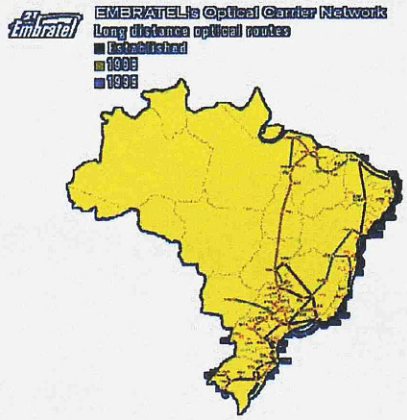
One of *Embratel*'s priorities in this new technology was the expansion of the national optical fibre network in 1998. The company added 14,800 kilometres of new optical routes to the existing network to streamline the high-speed data transmission capacity of the system, which had reached a total of over 23,000 by January 2000.[7]

The process of polarisation also applies to the spatial distribution of the installed wired infrastructure in the main cities in the Southern and Eastern regions of the country, with a strong concentration in the Sao Paulo region. Sao Paulo is the major centre of the network which makes up together with Rio de Janeiro, the main nodes (the Brazilian *megacities*) within this network. Sao Paulo's economic performance in the global network makes it the regional centre of the emerging Latin American market -

[5] See Embratel at http://www.embratel.com.br for the history of Brazilian telecommunications.
[6] Op. cit. (5)
[7] Op. cit. (5)

Mercosur. The implementation of the technological infrastructure accentuates the problem of polarisation on the already powerful south-east axis (Sao Paulo-Rio de Janeiro) within the Brazilian network of cities.

**Figure 4.2 - Embratel Optical Carrier Network**




Source: http://www.embratel.com.br/ingles/technologia/fibra/mapa_fi.html

The strategy of wiring Brazilian cities follows a similar consumer-orientated pattern of urban infrastructure distribution, resulting in the *spatial polarisation* on a few major centres, within the Brazilian network of cities. (Graham and Marvin, 1996: p.168-169). Figure 4.2 shows a map of Embratel's long-distance optical routes, which illustrate the spatial polarisation of the wired network within Brazilian cities, on a national scale. Shortly after the privatisation of *Embratel*, the investment strategy of the company concentrated on new technology, with the commercial Internet representing the most promising sector in the last two years.[8]

The internal market of personal computers had already experienced an explosion in consumption by 1995, when computers were being widely used in households, schools, and in private and public administrative departments at all governmental levels - national, state and municipal.[9] This period coincided with the recent deregulation of the market[10] and the entry of foreign computer corporations in the internal market which had the effect of increasing the consumption by sharply pushing

[8] Op. cit. (5)
[9] VEJA *Especial - 'Computador: O micro chega às casas'* (The computer gets into the households): Sao Paulo, December 1995.
[10] Federal Information Technology Law number 8,248/91.

down the prices.[11] At that time there was also the market euphoria resulting from the apparent stabilisation of the currency promoted by the *'Real Plan'*.

The national government drew up a special policy for the development of information technology within the country as a whole, which ran parallel with the privatisation strategy for modernising the telecommunications infrastructure. This national policy included, among other initiatives, the reorganisation of the Ministry of Science and Technology (MCT).[12] It also envisaged designing a number of special governmental programs to stimulate development and research into information technology, in collaboration with the private sector and all the state and local governments.

The introduction of Internet technology in Brazil has followed a similar process to that of the rest of the world. The first Internet national backbone was introduced in 1991 for academic purposes,[13] through the National Network for Education and Research (RNP).[14] Today it is a Priority Program of MCT, supported and operated by the National Council for Scientific and Technological Development (CNPq).[15] The availability of this infrastructure is considered a strategic landmark and endorses the governmental policy to use IT for social development. The government has just launched the *Information Society Program,*[16] which focuses on the social use of information communication technology.

In 1995, the national government set up a special inter-ministries sphere of action - the Brazilian Internet Steering Committee (CG),[17] to deal with the management of the commercial development of the Internet. According to this Steering Committee, statistics on Internet users and host numbers in Brazil cannot be precisely assessed. They provide some figures to show the recent growth of the Internet in Brazil in comparison with other Latin America countries and to position the country in the global network. In terms of hosts connected to the Internet, Brazil's position was - first

[11] This is compared with the previous period, not computer prices in the global market.
[12] See MCT at http://www.mct.gov.br/
[13] Among recent strategies was the creation of the Secretariat for Distance Education by the Ministry of Education and the lunch, in 1997, of the ProInfo - a national educational development program focusing on the integration of computers and communications technologies in teaching and learning in Brazilian public schools. (http://www.mec.gov.br/seed/proinfo.shtm)
[14] The RNP runs the Internet backbone RNP2, connected with the American project for the development of Internet 2. See the program site at http://www.rnp.br
[15] See CNPq at http://www.cnpq.gov.br
[16] For further details see the program at http://www.mct.gov.br/temas/socinfo/default.html
[17] See CG *at* http://www.cg.org.br/

among the leading ten countries in Latin America, third among the leading fifteen in the Americas (the first is USA and the second is Canada) and, fourteenth among the leading thirty countries in the world.[18]

**Table 4.1 - Internet Hosts in the World**

| | | | |
|---|---|---|---|
| North America - | from 30,488,565 in Jan/99 | to | 40,970,347 in Jul/99; |
| Japan - | from 1,667,534 in Jan/99 | to | 2,072,529 in Jul/99; or, |
| United Kingdom - | from 1,423,804 in Jan/99 | to | 1,599,497 in Jul/99 |

(Source: Network Wizard 1999 (http://www.cg.org.br/indicadores/index.htm)

Despite Brazil's superior position to other Latin American countries, in global terms the difference in size, in relation to the growth of Internet hosts, is huge, particularly when compared to the three best positioned countries in the world, in the same period as illustrated in table 4.1.

Brazil's position, in the league of Internet hosts, is very close to some European countries such as Italy and Norway and, a little better than Spain, Denmark, Belgium, Switzerland and Austria, i.e. among the thirty best positioned countries in the world, for the same period.[19]

**Table 4.2 - Internet Hosts in Latin America**

| | Jan-99 | Jul-99 | |
|---|---|---|---|
| Brazil | 215,086 | 310,138 | 1 |
| Argentina | 66,454 | 101,833 | 2 |
| Chile | 30,130 | 32,208 | 3 |
| Colombia | 16,200 | 31,183 | 4 |
| Uruguay | 15,394 | 12,697 | 5 |
| Venezuela | 7,912 | 9,424 | 6 |
| Peru | 4,794 | 7,805 | 7 |
| Ecuador | 1,548 | 1,764 | 8 |
| Paraguay | 1,147 | 1,303 | 9 |
| Bolivia | 626 | 386 | 10 |

Source: Network Wizard 1999
( http://www.cg.org.br/indicadores/index.htm )

[18] Data source: CG at http://www.cg.org.br/indicadores/, July 1999
[19] Op. cit. (18)

Table 4.2 illustrates the recent growth of the Internet and shows the number of hosts connected in Latin American countries in 1999.

In attempting to map out the extent of the informational gap in respect of the social and cultural development of the country as a whole, account should be taken of the social and economic indicators of the Internet infrastructure in Brazil. Although it is difficult to assess the precise figures, some basic statistics, produced by the World Bank Report - Knowledge for Development 1998/99, illustrate the size of the problem. Table 4.3 gives the basic statistical data for Brazil.

If these indicators are compared with the performance of other Latin American countries (as supplied by data from the same World Bank Report), countries such as Argentina, Chile, Costa Rica and Uruguay show a better infrastructure in relation to total population. Argentina has the best figures regarding TV sets (347 per 1,000 people), Chile is best positioned in personal computers (45.1 per 1,000 people), while Uruguay has the largest number of daily newspapers (237 per 1,000 people) and telephone lines (209 per 1,000 people).

**Table 4.3 - Internet in Brazil: Basic Statistics**

| | |
|---|---|
| Percent of Population with Internet Connection | 1.2% |
| Personal Computers (*) | 18.4 |
| Telephones (*) | 96 |
| Television (*) | 289 |
| Daily Newspapers (*) | 45 |
| Illiteracy Rate | 17% |

Sources: World Bank Report: Knowledge for Development 1998/99 and
TILAN - Trends in Latin American Networking
(*) per 1,000 Inhabitants
(http://lanic.utexas.edu/project/tilan/countries/)

Furthermore, when the number of Internet hosts per 10,000 are compared, the position of the countries changes to: Chile (13.12), Costa Rica (12.14), Argentina (5.32) followed by Brazil (4.2). Table 4.4 gives the data for the five best positioned countries in Latin America.

**Table 4.4 - Internet Infrastructure**

| Country | Daily* Newspapers | TV sets* | Telephone main lines* | Internet Hosts** | Personal Computers* |
|---|---|---|---|---|---|
| Argentina | 138 | 347 | 174 | 5.32 | 24.6 |
| Brazil | 45 | 289 | 96 | 4.2 | 18.4 |
| Chile | 100 | 280 | 156 | 13.12 | 45.1 |
| Costa Rica | 99 | 220 | 155 | 12.14 | .. |
| Uruguay | 237 | 305 | 209 | 3.18 | 22 |

(*) per 1,000 people
(**) per 10,000 people

Sources: World Bank Report: Knowledge for Development 1998/99 and
TILAN - Trends in Latin American Networking
(http://lanic.utexas.edu/project/tilan/countries/)

If account is also taken of the data on the size of each economy, i.e. GNP per capita in relation to the whole population, we can have a better idea of the economic variations in this group of countries. Individual performance, in relation to the growth of Internet hosts since the setting up of the commercial Internet, displays a similar pattern of expansion and regional polarisation. Table 4.5 shows the size of these five countries' economies, and their GNP vis-à-vis population.

**Table 4.5 - Size of the Economy**

| Country | GNP per captita ($) | Population (millions) |
|---|---|---|
| Argentina | 8,950 | 36 |
| Brazil | 4,720 | 164 |
| Chile | 5,020 | 15 |
| Costa Rica | 2,640 | 4 |
| Uruguay | 5,170 | 3.2 |

Sources: World Bank Report: Knowledge for Development 1998/99 and
TILAN - Trends in Latin American Networking
(http://lanic.utexas.edu/project/tilan/countries/)

A comparison between the data in both tables (4.4 and 4.5), shows that although Brazil has by far the largest population, it also has one of the lowest GNP per capita. These figures taken together with the fact that it has the lowest rate of personal computers (per 1,000 people) and Internet Hosts (per 10,000) shows the extent to which the growth of the Internet in Brazil has experienced internal polarisation. The data indicates the scale of the problem facing Brazil when it comes to using information technology for social development. It brings out the fact that there is a clear link between income concentration and lack of social infrastructure, even when compared with its Latin American neighbours.

The data illustrate that the growth of the Brazilian information network follows that of the *networking logic*, and serves to widen the already huge informational gap, not only regarding the global network, but also within the Brazilian network itself. State intervention has a crucial role to play in overcoming this disparity. If its policies were coordinated with those of regional and local authorities, it could combat the uneven allocation of technological and social resources in the infrastructure of the network of Brazilian cities.

However, if one examines the data that the CG provides on the recent growth of the commercial Internet in Brazil, it is apparent that so far, national government policies have not come to grips with the central issue of the effects of the *digital divide*.[20] There was a striking increase in the private presence on the network (92.70% in the growth-rate of the top-domain *'.com.br'*, during 1996, rising to 93.47% in 1997). During the same period, the *'.org.br'* domain for non-governmental and non-commercial organisations has also shown an increase, though at a much lower rate, from 2.78% (1996) to 3.63% (1997). The growth-rate of the other categories of organisations, particularly the educational (*.edu.br*), governmental (*.gov.br*) and military (*.mil.br*), as well as the telecommunications companies (*.net.br*), have experienced a slight decrease in 1997. The Committee claims this steady growth was expected because of their high growth-rates in previous years.[21]

Our intention in having a cursory look at these data, was not to fully address the complexity of the political and economic conditions required for the growth of the Internet in Brazil. Rather, we wanted to stress the complexity of the analysis while showing some initial indicators of the tendency towards the dominance of the commercial Internet in the Brazilian network. This tendency is not new and is in line with the global pattern of the expansion of the Internet.

These recent trends have revealed a major contradiction between the aims of national government policies and the actual performance of the sector which in itself deserves further attention and academic investigation, particularly as it applies to urban planning issues. This bodes an unsettled future for the development of IT when it is

[20] See ABCNEWS.com: Worldwide poverty Gap Widens, Geneva, July 12 1999, for further debates on the gap between the world's rich and poor.
[21] Source: *Internet Growth in Brazil 1995/1997*, from CG Web site at http://www.cg.org.br/indicadores/

aimed at social development, within Brazilian society as a whole and the network of Brazilian cities in particular.

### 4.2.2. Urban planning and social change in the context of Brazilian cities

Brazilian cities are facing urban challenges at a macro level that result from the impact of the information process and these open up two axes for analysis - the physical infrastructure and the social infrastructure. First, there is the issue of the implementation of the new informational telecommunications infrastructure and the tendency for spatial polarization to occur within the main centres. Then, there is the problem of the lack of an urban social infrastructure to allow a widespread expansion of the informational process throughout the network of Brazilian cities.

The debate about the emergence of a new paradigm for urban planning practices which arises from our theoretical framework claims that there is a need for social innovation running parallel with the need for technological innovation in planning practices. This debate should involve an interrelation between two unfolding social processes -

(a) the democratic restructuring of governmental political power relations at a city level

(b) the social re-organisation emerging from the rise of insurgent citizenship movements on an urban scale, which seek to redefine the notion of social justice within the particular context of Brazilian society.

#### Urban planning and the process of political re-structuring

Our previous analysis of the political dimension of planning practices in relation to social power relations within the public sphere, largely relied on the authors that analysed North American and European contexts[22], within which three historical periods were identified (*master plan, systems view* and *participation in conflict*).[23] Urban planning in Brazil follows a similar pattern of development which determined the origins of political and economic restructuring in the 1990s. The distinguishing feature of the Brazilian historical context of planning theoretical practices, apart, of

[22] See Chapter 2: sub-section 2.2.1.
[23] See Hall (1988 and 1992).

course, from the social and economic conditions affecting development, was the fact that the country experienced a period of military dictatorship from mid-60s to mid-80s.

This period occurred between the institutionalisation of urban planning in the 1950s and the recent period of restructuring that started in the mid 1980s. Instead of being allowed to mature inside a democratic social structure, urban planning theories and practices evolved within a context of authoritarian social relations imposed by the State on the majority of Brazilian civil society.

The first stage, the *master plan era,* paralleled the theoretical approach for urban planning in America and Europe and also involved designing the physical plan of the city. The *blueprint* approach spread throughout all the urban planning experiences in Sao Paulo and Rio de Janeiro (Salengue and Marques, 1993: p.156), as well as most of the capitals of the Brazilian States, including Porto Alegre. (Salengue and Marques, 1993: p.156-157) The 1960s was also a period of accelerated urbanisation and it can be said that the new modern ideals crystallised in the project of building a new capital, Brasilia.[24] In fact, the theoretical principles underlying this project led to the city becoming an urbanistic icon among the sophisticated modernist branch of Brazilian architects, urbanists and planners.

In the mid-1960s, when the social effects of the capitalist urbanisation process started to be questioned by urban social movements all over the world, the military regime and totalitarian political practices set up a bureaucratic infrastructure in the State capitals to consolidate urban planning practices on a local scale. Direct elections for mayors were suppressed in the capitals of the States, which meant, among other things, also the suppression of some basic democratic civil rights and allowed the central government to have actual control over the management of these cities.[25]

Not surprisingly, this phase also corresponded to the consolidation of the *'rational scientific'* approach in urban planning, which was used as a strategic tool to empower the technical-bureaucratic sections of the local administrative structure. This approach

[24] See Holston (1989) for a critical appraisal of Brasilia's project.
[25] A total of 180 municipalities (including 26 states' capitals) were declared *'areas of national security'* and prevented from electing their own local governments, comprising 42% of the total Brazilian population. See IBAM at http://www.ibam.org.br

entailed the discursive use of an ideologically *'neutral'* planning tool to deal with the growing tension caused by the social and political conflicts within this urban scene. (Castells, 1996: p118)

Political and administrative autonomy was withheld from these Brazilian municipalities in a process of administrative centralisation.[26] The process involved both the centralisation of public resources to the physical and social infrastructure, and the centralisation of information, at national and local levels. It was within this political context that the *system* approach for urban planning was adapted from the European and American experiences. On a theoretical level, urban planning was regarded as a complex, scientific and rational control system; however, in practical terms, it was viewed through the lens of the totalitarian model, which had the power to grant excessive political control over social relations. Public participation in urban planning, within this political context, was nothing more than a panacea for manipulating public opinion.

The central government also created a new national organisation - the *Federal Service of Housing and Urbanism* (SERFHAU),[27] which was designed to consolidate the new urban planning strategy in Brazilian cities. Within this context, the Brazilian version of the system approach resulted in a planning model which was turned into a new methodology of *'doing plans'*, termed *Municipal Plan for Integrated Development* (PMDI). It was a turbulent period for urban planner practitioners, and left-wing planners and architects.

A new government organisational structure created nine metropolitan regions between 1973[28] and 1974,[29] in order to support the military strategy. They comprised 'polarisation areas' around the capitals of the largest Brazilian States: São Paulo, Rio de Janeiro, Porto Alegre, Curitiba, Belo Horizonte, Recife, Salvador, Fortaleza and Belém. Although they make up only 0.5% of the national geographic territory of the

[26] See *'The Evolution of the Brazilian Municipality: The position of the Municipality within the Constitution of 1967 and 1969'*, Rio de Janeiro: IBAM. (Op. Cit. 25)
[27] The *SERFHAU* operated from 1964 to 1974 and, the *BNH* and the *FIPLAN* Program took over these activities, after *SERFHAU* was terminated. See Nygaard (1993: p.248-249) and Salengue (1993: p.160).
[28] Complementary Law n.14, of June 8, 1973, created eight metropolitan regions: Belém, Fortaleza, Recife, Salvador, Belo Horizonte, São Paulo, Curitiba and Porto Alegre (Mello and Reston, 1991: p.23).
[29] Complementary Law n.20, of July 8, 1974, created the metropolitan region of Rio de Janeiro (Mello and Reston, 1991: p.23).

country, they have 32% of the population. They encompass the main nodes of the Brazilian network of cities. (Mello and Reston, 1991: p.23)

Table 4.6 illustrates the size of these nodes in relation to the population of their main cities. Eleven cities formed the set of the most populated municipalities in 1997, with the addition of two new nodes to the network of the 1970s - Brasilia and Manaus.

**Table 4.6 - Most populated Municipalities in Brazil**

| | |
|---|---|
| São Paulo – SP | 9.968.485 |
| Rio de Janeiro - RJ | 5.598.953 |
| Salvador – BA | 2.302.832 |
| Belo Horizonte - MG | 2.139.125 |
| Fortaleza – CE | 2.097.757 |
| Brasília – DF | 1.969.868 |
| Curitiba – PR | 1.584.232 |
| Recife – PE | 1.378.087 |
| Porto Alegre - RS | 1.314.032 |
| Manaus – AM | 1.255.049 |
| Belém – PA | 1.186.926 |

Estimated population 1997
Source: IBGE (http://www.ibam.org.br)

Porto Alegre, like most other capitals at this time, also developed a program for the re-evaluation of its previous master plan based on SERFHAU's model. This ended up with the formulation of a new plan - *The First Master Plan for Urban Development* of Porto Alegre (1st PDDU). (Salengue, 1993: p.159-162)

The central government strategy of *'making plans'* for *'integrated development'* has come under a great deal of criticism from Brazilian academics (Krafta, 1993 and Nygaard, 1993), not only on account of the methods and techniques employed, but also because of the technical skills required and the top-down approach. This suggests the need for a re-politicisation of the debate within a new context of governance.[30]

The consolidation of new urban planning practices started through the actual planning experiences of local governments during the 1990s. Its origins can be traced back to the 1980s, when the debate about the issue of political autonomy for local

[30] See also Oliveira and Barcellos (1993), Liedke and Ferretti (1993) and Ferretti (1993), for the political debate on the case of Porto Alegre.

governments and the democratisation of local power, were put back on the urban agenda. This process had been maturing since the late 1970s, with the first signs of a political retreat on the part of the military regime due to the social pressure generated by a series of economic crises. It started to take shape in the mid 1980s with the end of the military regime and a return to constitutional government. (Carrion, 1993: p. 290)

The Federal Constitution of 1988 acted as a benchmark for the re-democratisation process. It re-affirmed and increased municipal autonomy,[31] both in political and administrative terms. Municipalities are now formally defined as entities of the Brazilian Federation.[32] (Mello and Reston, 1991: p.7-8) The constitutional process parallels the re-organisation of civil society through the constitution of new political parties, urban social movements and collective forms of popular organisation. These have been taking an active part in the struggle to consolidate democratic practices (Rolnik, 1998).

There is a catch in the process of municipal decentralisation and local autonomy and this is simply that economic crises can have dire social consequences. This particularly applies to the hard conditions of impoverishment facing the working population and the deterioration of urban environments, while the withdrawal of the Central government from responsibility for providing social policies has left the municipalities with the task of dealing with the huge demand for a viable physical and social infrastructure. (Carrion, 1993: p.291-292)

There were some important provisions which were introduced by the 1988 Federal Constitution to ensure more democratic forms of public participation, as well as ideas about the *social function* of the city and *urban ownership*. Municipal planning also regained the status of an important instrument for the municipalities, as it augmented their role in the process of economic and social development. It not only led to the adoption of a general urban plan, but also to new budgetary regulations. (Mello and Reston, 1991: p.22) With regard to municipal and urban planning, the Constitution of 1988 clearly defined the area of municipal competence as being matters relating to the social function of the city.[33]

[31] See Article 18 of the Brazilian Federal Constitution, 1988.
[32] See Articles 1 and 18 of the Brazilian Federal Constitution, 1988.
[33] See Articles 182 and 183 of the Brazilian Federal Constitution, 1988.

The 1988 Constitution laid down provisions for new urban instruments to deal with the central question of urban ownership, which included: progressive taxes on urban real state property *(IPTU)*, together with compulsory acquisition of empty or under-used property in urban areas. The Constitution redefined the means for determining ownership of urban real estate property *('usocapião urbano')*, and reduced the time squatters must wait to claim the property they are occupying from 20 to 5 years.

Most of the State Constitutions and the Organic Laws of the Brazilian municipalities were strengthened by means of these urban regulations of the Federal Constitution, and in some cases democratic principles were even extended.[34] They were related to the question of social inequalities and the debate on the social function of the cities and urban land. This debate stimulated a quest for a new approach to urban planning practices, which would encompass more democratic levels of popular participation. It also resulted from the pressure of organised urban social movements, supported by sections of civil society such as left-wing planners, urbanists and lawyers involved in *Urban Reform* (Rolnik, 1998).

**Social change and innovation in planning practices**

The implementation of innovative planning practices was constrained by an inherent contradiction. This arose from two axes (a) the inertia of the traditional technocratic structure of urban planning, a structure which was still in place when directly elected local governments began to come to power; (b) the suppression of national social policies. Municipalities were left with only a relative degree of political/economic autonomy for dealing with a huge demand for improvements in the social and physical infrastructure.

Despite a huge shortfall in resources for meeting the demands for an effective urban infrastructure, there was a general expectation among social bodies that the local authorities could achieve a great deal. By the early 1990s, some municipal governments[35] were able to keep to their political and ideological agenda, and reflect the urban social movements that constituted their political basis by attempting to

[34] See also: Rolnik (1998) on the Organic Law of Sao Paulo; Nygaard (1993) on the Organic Law of Porto Alegre.
[35] The first experiences of this kind were - Luiza Erundina's government (Sao Paulo, 1889-1992) and Olivio Dutra (Porto Alegre, 1989-1992), both from the left-wing Workers' Party (*PT*).

implement new social urban policies on a local scale which mirrored their 1988 constitutional rights.

These were isolated experiences but they took account of the political, geographical and cultural differences between Brazilian regions and cities. They did not constitute either a homogenous process of implementing new planning practices or a radical paradigmatic shift. On the contrary, they represented local efforts undertaken by different municipalities, within the particular circumstances of local political and social power relations.[36]

It is worth referring to the theoretical debate on urban governance, within the global context of the informationalization process. (Borja & Castells, 1997: p.7-8) The process of global capitalist restructuring together with the crisis of the nation state has brought about the revival of the urban debate worldwide. This debate was not confined to the international community of urban planning academics and practitioners, but also reached the international political agenda under the pressure of agencies and organisations such as the United Nations and the World Bank[37] which encouraged a broad international debate at a government level. (Borja & Castells, 1997: p. 212) This internationalisation of the debate about the urbanisation process and the *environmental and sustainability agenda*[38] characterised the structuring of an *international movement of cities*[39] and had also reached Brazilian cities by the beginning of the 1990s.

The general trends in Brazilian urbanisation[40] revealed the following: a rise in *'productivity islands'* within the majority of the regions; a fast growth rate within the *'old national peripheries'*, a geographically enlargement of the area of urban agglomerations; relatively low rates of metropolitan growth, particularly in the nodes, and an increasing number of medium-sized cities.[41]

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[36] See Chapter 2: sub-section 2.2.2.

[37] See *'Urban Policy and Economic Development: an Agenda for the 1990s'*, A World Bank Policy Paper, 1991, Washington: The International Bank for Reconstruction and Development/ The World Bank.

[38] See Borja and Castells (1997: p.126-142) and Batty (1995a) for further analysis.

[39] See Borja and Castells (1997: p.203-232) and Hall (1995) for further analysis.

[40] More than 61.15% of the total population were already urban in 1975 and the forecast was that it would reach 84.67% by the year 2000, with a new jump to 88.94% in the next 20 years.
Source: Consortium Partnership 21: *'Cidades Sustentáveis' - Documento Final, Projeto Formulação de Políticas Públicas Compatíveis com os Princípios de Desenvolvimento Sustentável Definidos na Agenda 21, Consórcio Parceria* 21, 1999, Rio de Janeiro: IBAM, ISER e REDEH.
(at http://www.ibam.org.br/parceria21/cidsus21.htm)

[41] See the Agenda 21 survey (Op. Cit. 40) for patterns of population growth and a typology for the Brazilian network of cities.

Despite regional disparities[42] and the complexity of the social and economic conditions facing Brazilian urban development, a common pattern of structural intra-urban problems can be found in most municipalities. This common pattern raises a key issue in the debate about the social function of the city, or rather - the conditions required for there to be an equitable access to urban land and housing with basic sanitation and other public services. This was also the central issue in the political debate on *urban reform,* together with the constitutional process that led to the 1988 Constitution.

Although available empirical research in this field is inconclusive and not sufficiently comprehensive, it is likely that social/spatial exclusion within the Brazilian urban network is associated with the dual pattern of intra-urban distribution (Borja and Castells, 1997). Socio-spatial segregation represents the material basis for the reproduction of social exclusion and comprises a perverse cycle, of varying degrees of social and economic intensity and specific kinds of regional spatialities while being something the different typologies of cities share in common.

Recent empirical studies (Rolnik, 1998)[43] have sought to address the impact of new urban legislation by attempting to prove that there is a link between this urbanisation pattern and the effects of traditional urban legislation. These studies have demonstrated that the measures embodied in planning and urban legislation, especially the laws related to zoning (*'lei de zoneamento'*) and property development, (all of which have been traditionally used as planning measures to regulate the urban real estate market in the interests of the public) have in fact only served to aggravate the extent of social spatial segregation within cities.

These factors are a part of a social and economic cycle that lead to the *urban divide* in the pattern of Brazilian urban development, and can be illustrated by the following typology of urban growth:

- *the regular city* - a created area which conforms to planning parameters (the street system and plot divisions are well-defined and the building morphology follows the patterns of planning legislation);

[42] The general tendency has been for an increase in the developmental gap between the cities in the North and the Southeast regions. (Op. Cit. 40)
[43] This concerns case studies of the cities in the metropolitan regions of Sao Paulo State.

- *the irregular city* - residents who cannot afford the urban indices of the planning legislation. The patterns of land use are more complex and show a gradual decline in living conditions, from more stable neighbourhoods (*'bairros'*) and irregular subdivisions (*'loteamentos irregulares*) to the more precarious shanty towns (*'favelas'*). The irregular subdivisions usually have a basic sanitary infrastructure (water and electricity supply, and sewerage system), a certain degree of street system configuration and sub-divided plots (more than one family dwelling in the same plot), with self-help housing. The slum areas usually include public or private land that has been invaded, high density of land use, undefined division of plots with self-help housing, and a street system which is also not well-configured, although the street itself usually constitutes the main public arena for social interaction in the community. (Rolnik, 1998)

The new political task facing autonomous municipalities, in the political context of the 1990s, (with populations higher than 20,000 inhabitants), was to draw up and approve master plans to regulate the management of their cities. They had to formulate a new political equation for the dynamic equilibrium of the social struggles and power relations underpinning the structural spatial dualities. They also had to find the necessary resources to meet the demands for basic infrastructure and public services, which are usually associated with the dual pattern of the growth of *irregular cities* within the municipalities.

There was a revival of the old debate between urban planners and policy-makers on the content and functions of master plans and urban legislation in general. This included a critical review of the ways master plans had been used in the recent history of urban planning in Brazil. At that time some major municipalities, especially those run by the left-wing PT, recommended introducing innovative legal measures to regulate the use of urban land and property; this policy was associated with the implementation of innovative means of popular participation in urban management.[44] They set the stage for others to follow and triggered off a process of similar local initiatives that started to pop up in municipalities all over the country. (Rolnik, 1998)

[44] Recife, Sao Paulo, Porto Alegre and Belo Horizonte were the main examples among the metropolitan regions experiences, and Santo Andre, Goiana, Ipatinga, Santos and Rio Branco among medium-sized towns with the same path. (Abers, 1998).

Recent studies of municipalities in the State of Sao Paulo, have shown that local governments which have a popular democratic profile, are more likely to draw on support from legal planning when intervening in the property market and favour a degree of urban income redistribution. The successful conditions required for the implementation of these new measures and the actual undertaking of new patterns of urban land use, depend on the ability of local governments to carry out their political projects in association with an organised political-electoral base. (Rolnik, 1998)

These planning measures were more concerned with changes in legal regulation than with a paradigmatic methodological change in the traditional rational model of *devising master plans* for *urban development,* from the late 70s to the early 80s. Undoubtedly they represent an ideological shift, as their goal is the inclusion of the disempowered population within the legal processes of production of urban space, particularly the enlargement of the housing market. Yet they did not appear to ask questions or come up with new proposals regarding the quality of the urban morphology of these newly created spaces. There is no evidence that the planners have retreated from their *expert*'s position of *working for* instead of *working with* the popular sections of organised civil society. This suggests that the *'rational approach'* for *'devising master plans'* is still alive and is still reproducing the old contradictions of the planners' praxis.[45]

These are recent experiences that still need further investigation to ascertain their actual potential for introducing more lasting and radical changes in the traditional paternalist and *'clientelist'* patterns that have moulded the political relations between local governments and communities within Brazilian municipalities. This political debate has now been incorporated in the national programme of decision-makers, in line with the international policies signed at the *United Nation Conferences on Environment and Development* (Rio 1992), as well as both the *Habitat Agenda on Sustainable Urban Development* (1996) and *Agenda 21* (1998).

There seems to be a common agreement among the national and international community of decision-makers that new models for sustainable urban management, in developing countries alike Brazil, need to combine:

[45] See Chapter 2: sub-section 2.2.3.

a) the new requirements of the globalised economy regarding the public regulation of the city production, with
b) addressing the main problems resulting from the process of social exclusion and the deterioration of the environment.[46]

In the past, the general practical approach to questions of structural social inequality, which were embedded in the urban models and master plans of the main cities of the different regions, was either to ignore them or, at best, to approach the problem as a *social disease,* a *dysfunction* of the urban system that needed treatment. Irregular settlements and slum areas were regarded as something which could be eradicated, as long as the *correct* planning instruments were used to regulate the desired development of the urban system. This generated a great deal of academic discussion and led to investigations that questioned these practices, usually from a traditional Marxist perspective. The emphasis was usually analytical and disregarded the methodological contributions that could open up alternative practices.[47]

The fact that there now prevails a more democratic context seems to have contributed to the rise of innovative planning experiences, which are largely the outcome of pressure from the civil society organisations of government planning agencies. This means that a political voice has now been given to sections of the population that have been traditionally excluded from the urban planning agenda.

We believe that there are fundamental theoretical questions which should be considered by Brazilian planners, whether they be activists or professionals. Are urban planners ready to enter into a new dialogue with the whole range of civil society organisations, and move away from the traditional rational approach to a more communicative rationality? To what extent do the master plans and the planning legislation proposed so far, fulfil the role of planning measures to allow this kind of interaction? Or are we just fooling ourselves by resorting to twentieth-century urban planning paradigms and technologies to deal with the new dimensions of social inequalities within the urban complexity of the information society? Further empirical

[46] See *'The Best Practices and Local Leadership Programme' (BLP)* and the National Project promoted by IBAM. See also http://www.ibam.org.br/urbanos/assunto1/projeto.htm or,
BLP at http://www.sustainabledevelopment.org/blp/
[47] See Chapter 2: section 2.2.

evidence of the actual processes taking place on a city scale is even more urgent if we wish to address these questions.

### 4.2.3 Advanced Information Technology and planning practices in Brazilian cities

Our theoretical framework drew a parallel between the development of computation and urban planning methodologies, centred on North American and European experiences. In this sub-section an attempt is made to sketch an overview of how these technological innovations have been translated within the urban planning setting of Brazil.

The digital environments are approached by considering our two methodological typologies - *cspace* and *cyberspace.*[48] An attempt is made to summarise the general characteristics of institutional planning, underlying the political, economic, social and technological limits of each conceptual space, in relation to the planning paradigms in which they are embedded and within the broad picture of Brazilian institutional planning.

#### Urban planning and cspace

A similar pattern of computation and paradigmatic shifts in urban planning can be observed, as was noted in the case of developed countries. They have both evolved from traditional top-down models, where 'main frame' technologies dominated, to more decentralised bottom-up contemporary models, which were stimulated by the development of personal computing and computer graphics. What distinguishes the two cycles in the case of Brazil, is the structural technological gap, which was accentuated in recent decades as a result of the strategic policies for information technology adopted by the military government.

The use of computation in urban planning has been related to state-driven initiatives. There has been a systematic time lag that might well be associated with a lack of a

[48] See Chapter 1: section 1.4.2

technological infrastructure, as much as of qualified professionals in institutional planning.

The use of computers for the representation of urban space and spatial data processing within institutional planning in Brazil is not new and has followed the same general trends as in developed countries. What distinguished the institutional planning history of Brazil, however, were the two decades when the country was governed by a military regime. The centralised policies of the governments of this period limited the penetration of new computation technologies, particularly the expansion of personal computing, as well as more decentralised planning models.

The military top-down model of decision-making was supported by a similar model of information control, which relied on centralised institutional planning of all sorts of information, including all aspects of urban environments - geographical, physical spatial, social, and economic.[49] As part of this strategy, mixed enterprises were created in most of the metropolitan regions for data processing, either at a state or municipal level.[50] They relied on the use of local area networks and dumb terminals main frame and were usually supported by contracts with leading international computer corporations, such as IBM. The first uses were for public administrative purposes, although there were some applications for urban planning, at that time (Gunn, 1989).

It was only in the mid 1980s that computer graphics technology started to increase its use of urban planning applications. This reached Brazil through the field of academic research but encountered several hurdles because of import restrictions on computers. Progress in the field was slow, at that time, on account of the extreme centralisation of the information systems created at governmental level, and because of a short supply of the available technology itself. (Gunn, 1989: p. 87-88)

At the time the concept of the city as a complex developing system was introduced, the technological gap in terms of planning tools and methodologies started to widen. While the implementation of *planning process* models was supported by technologies

[49] Until the early 80s slum areas and shanty-towns were not officially mapped and these information were considered a military matter of national security. (Fagundes, T (1980) - *'Projeto de Reurbanização da Vila Cruzeiro do Sul'*, Porto Alegre: FAU/UFRGS, unpublished paper.)
[50] PROCERGS and PROCEMPA were created at that time.

that included the use of microprocessors and computer graphics in developed countries, in Brazil access to the new technological wave was largely held back until the late 80s, by the protectionist policy towards information technology.

The Brazilian translation of the model of *system's view* in planning resulted in a hybrid model of urban planning. In practice these were extremely centralised planning systems supported by legalistic master plans, while in theory, they incorporate the idea of the diversity of urban systems.[51]

A similar time lag can be observed in the academic investigation of the field of spatial analysis and applied computation (mainly GIS). Brazil has been restrained by the straitjacket of protectionist policies imposed on the development of IT and has thus continued to be a consumer rather than a producer of technology. Academic research in the field started to grow in response to the openness of the computer market in the late 80s. The first transition period from one technology cycle to the next (dumb terminal main-frame to the personal computer) required a much longer and more arduous process.[52]

The use of spatial information technology for embedding geographical information in *cspace*, in the case of Brazil, has been experiencing major difficulties, both in relation to the choices of technological resources available and their implementation on a local scale. There was a general agreement, among decision-makers, on the need to enhance the technological basis and the management of local information systems,[53] as much as in the up-dating of basic urban geographical information (aerial cartography and property register maps), in the late 80s.

This period parallels the arrival of the Geographical Information System (GIS) commercial packages (software) in the national market together with the required new generation of computer equipment (hardware).[54] Local governments started to increase their interest in GIS technologies, which were regarded as possible comprehensive technological solutions for upgrading and managing their old generation of

[51] See (Krafta, 1993) for a critical overview of planning models in Porto Alegre.
[52] See Santos (1997: p. 125-127) on the transition cycle at PROCEMPA.
[53] See Dowbor (1998) for an overview on information systems in Brazilian municipalities.
[54] See Fagundes and Rocha (1994) on the introduction of GIS applications in Brazil.

information systems. The first generation of GIS technology was generally identified with the use of digital tools to store, manipulate and display spatial data and information, and soon became associated with the recurrent idea of the re-democratisation and administrative modernisation of Brazilian municipalities.[55]

The use of GIS applications for municipalities started to spread all over the country alongside new local policies for re-democratisation and privatisation in the early 90s, even in places where computers were still more a wonder, than an everyday feature of local administrations.[56] These commercial packages were able to offer systems with an ever-increasing 'functionality',[57] although they ignored the specific needs of local organisations and the computational culture of Brazilian municipalities. Yet, these first experiences within local administrations started without any theoretical guidelines for GIS implementation in most Brazilian cities.

During the 90s, a large number of experiences of implementing GIS systems have begun to be implemented in major cities like Sao Paulo or Rio de Janeiro, and the capitals of the metropolitan regions,[58] as well as medium-sized towns in the South.[59] There have been major difficulties in implementing these experiences not only because of the nature of the technology itself (costs for acquiring equipment, hardware and software, surveys for data updating and digital conversion of previous databanks) but also on account of administrative and organisational practices (such as the required changes in operation, strategy and management, resulting from sharing information).[60]

There was a great variation, and different degrees of success were registered within this set of experiences. The general logic follows a similar pattern of concentrating technological investment on the major municipalities, which are already technologically better equipped. There seems to be no direct relationship between the amount of investment and the successful conditions required for implementation. On the contrary, when the implementation of the new technological resources has to rely

[55] See Vaz (1997) for further analysis and also the BNDES site at http://deferativo.bndes.gov.br/dicas
[56] See Fagundes and Rocha (1996) on GIS applications for Brazilian municipalities.
[57] See Martin (1996) for a critical review on the first generation of commercial GIS solutions.
[58] See Fagundes and Rocha (1994) for examples in metropolitan capitals (Belém, Salvador and Recife in the North and Northeast to Belo Horizonte, Curitiba, and Porto Alegre in the South and Southeast).
[59] See Loyola (1998)for further examples [Sao Leopoldo (RS), Santa Cruz do Sul (RS), Mogi das Cruzes (SP), Betim (MG), Blumenau (SC) and Jundiai (SP)].
[60] See Campbell (1991) for a similar overview on the impact of GIS on local government in Britain and America.

too heavily on analysing the financial costs and benefits of replacing traditional procedures, serious organisational, institutional and political local constraints tend to be ignored (Câmara, 1998).

Experiences in implementing GIS technology within Brazilian municipalities are still recent and not yet fully in place and it is too early to make generalisations, about trends in the urban system as a whole. Available observations derive mainly from exchanges of experiences between the community of users, within specialist meetings, conferences and seminars, rather than from a coordinated body of academic research, or any macro policy in the field. It follows that any assumptions that the use of new technologies will either serve to democratise access to information or decentralise city planning and management remain no more than a working hypothesis at this stage.

What can be claimed is that GIS technologies have been an essential element in the choices of decision-makers about the production of *cspace,* among Brazilian institutional planning organisations in recent years. This is borne out both by the growth of the internal GIS market, with its emphasis on local government applications, and by recent government policies regarding the Brazilian privatisation programme and incentives for the modernisation of local administrations.[61]

### Urban planning and cyberspace

Cyberspatial technology is not new for the academic community in Brazil, but its expansion to the outside world has only occurred very recently, a fact which can be accounted for by the political and economic re-structuring process and the national information communication strategy. The use of cyberspatial technology for local governmental planning organisations has been even more recent. National government agencies have only been playing an important role within the macro information strategy since the mid 1990s. It is still too early to make generalisations about the impact of cyberspatial technology on the Brazilian urban network a whole. However, as we are adopting an epistemological position in which the information process can be regarded as a social construction rather than a historically determined outcome, some indicators should be analysed at a global level.

[61] On long-term funding programs and the Brazilian Privatisation Program see BNDES at http://www.bndes.gov.br

There has been a general approach towards a more *'communicative rationality'*, although academic interest in participatory practices and planning theories in Brazil has not been matched by any empirical investigation into past experiences in this field. Despite the climate of 're-democratisation', actual participatory planning practices have been largely related to the work of urban planning activists outside the government structure, who still tend to be regarded as outsiders by institutional planners. Their work usually involves a process of *'crossing over'*, combined with a tradition of political engagement in the struggle for social justice. In recent years this attitude has started to change and the work of planning activists in some non-government organisation[62] has started to be recognised, in the academic sphere, and this has given them an important voice in the international debate about cities, popular participation and sustainability.

The interrelationship between participatory planning and cyberspace is still a very recent issue and academic research has been more concerned with the development of the professional applications of technology, than with theories that support a paradigmatic shift towards its public implementation.

The strategy of implementing *cyberspatial technology* in *participatory planning* policies, has converged with the recent debate about *urban reform* and the widely varying degrees of access to basic citizens' rights, such as entitlement to use of urban land, housing, sanitation, health and education. As a result, urban planners have largely disregarded the theoretical debate about the way that cyberspatial technologies can, either exacerbate poverty and social exclusion or mitigate the negative effects of these social evils on city life. They have even failed to give consideration to the link between participatory practices and the communicative approach to urban planning. Nonetheless, there is a general assumption that by using the Internet the municipality can get closer to the citizens and democratise the process of gaining access to information (Vaz, 1995).

A number of steps have been taken by local governments to build the first generation of Brazilian *virtual cities* despite the lack of any in-depth discussion or supporting

[62] On planner activists and popular participation see FASE at http://www.fase.org.br

theoretical guidelines; this follows the same pattern as that of local governments in developed countries in recent years.

The information policies of local governments have run parallel with the macro-national strategy for information communication technology, privatisation and the expansion of the commercial Internet in Brazil in the last few years. An increasing number of Brazilian versions of *virtual cities* have started to pop up on the Internet, either as commercial sites,[63] on the initiative of local governments, or as public-private partnerships.[64]

An initial overview of these electronic analogies of Brazilian cities has shown that they generally embrace, *web listing virtual cities types,* or at best, examples of *flat virtual cities*. The first type comprises what is described as *'on type'* guides. Usually created for the promotion of tourism, these have grown into a new kind of digital fashion among traditional cities all over the country. The second type encompasses most of the civic sites, although there are huge variations in the information they display. *Flat virtual cities* consist of the following: static interfaces made up of images in which icons or pictures are used to represent aspects of real places; multimedia data banks; and a situation where very low levels of interaction (mainly textual interaction, via e-mail) are allowed to occur. A common feature of both types is that they have been created to communicate information by advertising how local governments can serve their citizens and by publicising their plans for the future of the city, rather than adopting professional and participatory uses for urban planning.

It should be pointed out that these first experiences and their development in recent years were of an ephemeral character. A number of steps have been taken to introduce more complexity into their web sites, and make attempts to overcome major shortcomings in infrastructure, whether they be technological or social. These steps entail the introduction of local IT policies to improve levels of connectivity as well as making the first attempts to guarantee public access for citizens in general. Attention

[63] See UOL-Universo at http://www.uol.com.br for an example of a successful commercial virtual city built by a large telecommunications corporation in Brazil.
[64] See NUTEP at http://nutep.adm.ufrgs.br/links_cidadesbrasil.htm for a comprehensive list of links to municipal sites of Brazilian cities.
See http://nutep.adm.ufrgs.br/links.htm for a list of links to municipal sites of the Rio Grande do Sul cities.

should be particularly drawn to the experiences under way in Curitiba[65] and Porto Alegre.[66]

The City Hall of Curitiba has just launched the first Brazilian public network, a programme called - *'Digitando o Futuro'* (Making the Future Digital, June 2000). This network aims to ensure free universal access to the Internet through the implementation of 55 public points of access scattered all over the city, including 567 personal computers, with enough capacity for 180 thousand users every month.[67] Porto Alegre's experience involves a more comprehensive example of local information technology strategies which is in line with the policy of popular participation in the city administration.

Although it is still premature to provide an entire picture of *Brazilian virtual cities*, and the huge variations which prevail among local strategies, it is possible to identify a common logic of polarisation - richer municipalities are well connected, while poorer ones are not. On a national scale, the divide between cities is reproduced by the uneven standards manifest in differences of technological and social infrastructure, which follow the same regional concentration as those of the richer regions of the country - the Southeast and South. Sao Paulo and Rio de Janeiro displayed high levels of connectivity, as well as more complex civic Web sites.[68] The same logic is reproduced in the cities and suggests that there is a link between the local socio economic conditions of income distribution and the private conditions of access to the Internet in recent years. This uneven social geography of real places has played a crucial role in the construction of the *virtual geography* of *cyberspaces* in Brazil.

The official policy of the federal government recognises that it is necessary to ensure a *universal service* is operating and make the Internet go where private enterprise is unable to take it. The Internet is not nearly regarded as a means of telecommunications but also, as an information service and thus access to it should be available for the whole of society. This attitude involves a national policy of reduced tariffs for education and non profit-making institutions, as well as taking steps at a federal, state

[65] See http://www.curitiba.pr.gov.br
[66] See http://www.portoalegre.rs.gov.br
[67] See http://www.curitiba.pr.gov.br/digitando/index.html for further information on the program.
[68] See http://www.portal.prodam.sp.gov.br/ for Sao Paulo *'electronic citizen services'* and http://www.rio.rj.gov.br/ for Rio de Janeiro *'talk to the major service'*.

and city level as part of a cost-sharing model.[69] It has been the policy of the national government to give the partnership respectability by involving the academic world and encouraging the setting up of an educational agenda. Within this agenda one of the most comprehensive national programmes has been the National Program of Information Technology Education (*ProInfo*).[70]

When it comes to steps taken by civil society organisations and the rise of Brazilian *virtual communities,* the ability to extend this notion beyond the traditional elites is still in an embryonic stage. Some attempts have been made by major public universities,[71] as part of their educational programme while being integrated with programmes at a national level. These initiatives entail the implementation of partnership programmes, between central government, universities and municipalities or state governments, and are aimed at the network of state schools in the poorest areas of the city. A number of scattered local initiatives have been witnessed by community organisations in the slum areas of some major cities, although these usually only have a limited life-span in cyberspace. Their ephemeral nature means that they are quite difficult to identify, as they require a good deal of fieldwork on the ground and further empirical observation.

In a country as large as Brazil, with its immensely uneven disparities of structural wealth distribution, it is unlikely that any comprehensive strategy for the social use of information communication technology can be developed without central government support. Despite all the government's public utterances about the need to ensure universal access, national policies and programmes fall short of what is required to address the full scope of the problem. In our view, an enduring national policy for the development of cyberspatial technology is a social and political construction in which local governments can play a fundamental role.

### 4.3 Insurgent Practices: the case of Porto Alegre

Further empirical investigation is required of the emergent character of *informational space* and the enormous diversity of the *urban network* in this country, to explore the

[69] Op. Cit. (12)
[70] Op. Cit. (13)
[71] See Project EducaDi at http://educadi.psico.ufgrs.br/centros for further information on Distance Education.

interrelationship between *cyberspatial technologies* and *participatory planning*. The question to be addressed next is how to define our empirical setting in the Brazilian network.

Our analytical hypothesis is that the social movements of insurgent citizenship in Brazil have accelerated the development of participatory practices aimed at social change, particularly in the light of the present process of political and economic restructuring. This process is bringing about *urban reform* and defining the *social function of the city*. The drive for social reform found its true expression in the process that culminated in the new Constitution of 1988 and the subsequent shake-up of political power, in the struggle for actual municipal autonomy that took place in the 1990s.

Our theoretical hypothesis is that the convergence of these processes with the development of cyberspatial technologies might enhance participatory practices through innovative forms of cyberspatial planning. This would require a radical paradigmatic shift within planning practices, and a move away from a traditional form of *instrumental rationality* towards a *communicative rationality*, based on an *epistemology of social learning*. The social, political and cultural conditions required for the configuration of this paradigmatic shift depend on the convergence of two processes occurring on a local scale - the organisation of grassroots communities and the defining of a political project for urban change aimed at social justice.

The fact that Brazilian *virtual cities* are in embryonic stage with limited experiences of using cyberspatial technology for professional planning practices has led us to concentrate on the capitals of the metropolitan regions. A selection has been made from the cities which have implemented lasting innovative planning practices during the last decade, (a criterion which has narrowed our choice considerably). An additional factor in the selection was to find cities which were experiencing a permanent political project of local governance aimed at social justice and it was this which finally drove us towards choosing Porto Alegre for our case-study.

As regards the theoretical conceptualisation of *insurgent citizenship* and *insurgent practices*,[72] the Porto Alegre experiment in building new forms of *local democracy* has already proved to have been singularly successful. These social practices can be regarded as insurgent planning practices in that they work against the old modernist dominant-planning paradigm, and challenge power relations within the state sphere at local levels of decision-making. Abers (1998), Sandercock (1998) and Friedmann (1998) are correct in arguing that this political movement achieved state power in the 1990s and then used it to pursue a transformative politics of democratisation, inclusivity and distributive justice.

The Porto Alegre experiment can be regarded as a success story, which was internationally acclaimed.[73] It achieved this by promoting popular participation, and by using this process to divert public expenditure to combat the process of social spatial segregation and the extremely uneven distribution of infrastructure and public services. Moreover, it obtained a high degree of political consensus and public approval, which is illustrated by the fact the Workers Party administration was able to go ahead with the project for three successive terms.

The Porto Alegre experiment represents what can be regarded as a *'bottom up'* style of local governance. It was constructed socially through the historical experience of establishing a new kind of partnership between social movements and local government; this implies a major cultural change through the development of *learning democratic practices* (Abers, 1998). It was not an easy task, as both partners constituted heterogeneous social structures while having no previous experience of combating structural social inequalities from within the power structure of the local state.

There now follows an analysis of the experience of the *Administração Popular* (Popular Administration).[74] This employs the perspective of social spatial relations on a city scale, with an emphasis on the role of conflict and consensus in shaping this new kind of participatory practice towards social inclusiveness.

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[72] See Chapter 2: sub-section 2.2.2.
[73] Op. Cit. (46)
[74] The slogan that termed the left-wing government of PT in Porto Alegre, based on a political alliance that encompassed a set of small left-wing parties (Navarro, 1997).

Porto Alegre is the capital of Rio Grande do Sul state in the South of Brazil. Figure 4.2 illustrates its general location in Brazil and Latin America.

**Fig. 4.3 - Porto Alegre location in Latin America**


Source: Prefeitura Municipal de Porto Alegre (2000)
(http://www.portoalegre.rs.gov.br )

Porto Alegre's geographical position close to the Southern boundary of Brazil means that it is in a strategic position with two major Latin America nodes (Buenos Aires and Montevideo). A list of key social indicators makes it stand out from the average figures in the other metropolitan capitals. Porto Alegre is the 9th most populated Brazilian municipality;[75] the literacy rate is 91%;[76] the child mortality rate is 18 per 1000 inhabitants;[77] there are 221 telephone main lines per 1000 people;[78] the water system supplies 99% of the city's population;[79] the sewerage system serves 79% of the population[80] and, 76.95% of the public streets and roads are paved.[81] Furthermore, the GNP per capita was $ 6,477 per annum[82] in 1995, which was well above the Brazilian average and, only below that of Argentina, in the same period.[83]

[75] See Table 4.6.
[76] Source: SMED, 1996 (In: *Atlas Ambiental de Porto Alegre,* 1998).
[77] Source: IBGE, 1996 (In: op. cit. 76).
[78] Source: CRT, 1996 (In: op. cit. 76).
[79] Source: DEMAE/PMPA, 1996 (In: op. cit. 76).
[80] Source: DEMAE/PMPA, 1997 (In: op. cit. 76).
[81] Source: SMT/SMOV/PMPA, 1998 (In: op. cit. 76).
[82] Source: DEMAE/PMPA, 1997 (In: op. cit. 76).
[83] See Table 4.4.

Porto Alegre has historically been characterised as a focal point of social and economic development, yet the social indicators also reflect the results of a high level of investment in basic infrastructure by the Popular Administration. In 1989 only 35% of the public streets and roads were paved (Andreatta, 1995), while the sewerage system served less then 46% of the city's population (Navarro, 1997).

**Table 4.7 - Porto Alegre Income Distribution (monthly) by percent of population**

| | (% population) |
|---|---|
| Below1 minimum wage (*): | 12.8% |
| Between 1 and 2 minimum wages: | 17.6% |
| Below 5 minimum wages (accumulated): | 62.3% |
| More than 5 minimum wages: | 37.7% |

Source: IBGE, Demographic Census, 1991 (In: *Atlas Ambiental de Porto Alegre, 1998*)
(*) Brazilian Minimum Wage - $71.10 (annual average value in 1991, source: Gazeta Mercantil)

Urban development in Porto Alegre, as in other Brazilian metropolitan capitals, can be characterised as an area of concentrated wealth as shown in Table 4.7. Yet the percentage of the population below the poverty line (i.e. individuals earning less than the equivalent of one minimum monthly wage) is well below the average in the rest of Brazil.[84]

**Table 4.8 - Population Growth in Porto Alegre and the Metropolitan Region (RMPA)**

| | Porto Alegre | RMPA (without Porto Alegre) | RMPA (with Porto Alegre) |
|---|---|---|---|
| **1960-70** | 3.30% | 5.60% | 4.20% |
| **1970-80** | 2.40% | 5.60% | 3.80% |
| **1980-91** | 1.06% | 3.83% | 2.55% |

Source: IBGE, Demographic Census 1970, 1980, 1991 and SPM
(In: *Atlas Ambiental de Porto Alegre*, 1998)

Another factor is that the annual rate of population growth has been declining in recent decades both in the capital, and in the metropolitan regions, while the decline is more marked in the capital. This suggests that the pattern of urbanisation has tended to grow and cluster around the main urban nodes. It represents the growth of cities or towns in

[84] See Franco (1999) on the concept of *poverty* within Brazilian public policies.

the metropolitan area, to the detriment of the main metropolitan node.[85] Table 4.8 shows the rate of population growth during the last three decades.

The figures from the Housing Municipal Department (DEMHAB) put into perspective the growth of the *irregular city* and the pattern of social spatial segregation. In 1997, there were 238,313 inhabitants (approx. 18% of the total population) dwelling in slum or 'irregular' areas (private or public); these made up a total of 633 nuclei, divided into 301 *'favelas'* or *'vilas'* (shanty towns) and 362 *'loteamentos clandestinos'* (irregular subdivision). Of this total, 173 nuclei were located in unsuitable environmental conditions (geological or hydrological). The annual housing deficit was estimated as being about 2,314 units (houses or plots with basic infrastructure).[86]

This brief picture illustrates the generally favourable position of Porto Alegre compared with the rest of the national urban network, but at the same time, it reveals the extend of social inequalities that the participatory experience had to face.

### 4.3.1 Learning with the popular movement

It has been shown how there is a need for a paradigmatic shift in planning practices to a social learning approach. Recent participatory practices have also been a central concern for both planning practitioners, and theorists in the field of international development and comparative political science. The international environment agenda on the sustainable development of cities has helped to make fashionable the idea that local governments ought to enter into a partnership with organised civil society. Our focus of interest is the concept of partnership which this range of experiences involves.

The concept of public participation in local government can be examined from two general perspectives which are not necessarily exclusive. First, there is the *'cost-reducing'* approach, which is often put forward by political groups and agencies who

[85] In 1973, when the Metropolitan Region of Porto Alegre was created it consisted of 14 municipalities, in 1989 with the democratisation process this number was almost double, up to 22 cities. This was the result of demographic growth, internal migration and the emancipatory process, as well as the pattern of polarisation of socio-economic development. In 1996 the Metropolitan Region of Porto Alegre was concentrated in 23 municipalities 35% (3,246,869 inhabitants) of the population of Rio Grande do Sul state (comprising a total of 427 municipalities), while the metropolitan municipalities also displayed the largest demographic densities in the state. (Source: IBGE, 1986 In: *Atlas Socio-Economico do Rio Grande do Sul,* 1998)

[86] Source: DEMHAB, 1997 (In: *Atlas Ambiental de Porto Alegre,* 1998).

argue in favour of cutting bureaucracy and reducing administrative government. Opposed to this is the *'empowering'* conception, which favours participatory programs to achieve a more democratic system for combating poverty and contributing to political and distributive equity. Porto Alegre's experience has been examined from both perspectives - those of political groups interested in reproducing the experience (Navarro, 1997) and, academic researchers interested in investigating the extent to which this policy has actually led to the empowerment of groups normally excluded from public influence (Abers, 1997 and 1998).

Our analytical perspective represents a departure from the empowering approach insofar as it recognises the impressive advances made in bringing about participatory practices in Porto Alegre, in quantity (Andreatta, 1995), as much as in quality (Navarro, 1997 and Abers, 1998). The following figures show the quantitative evidence of growth in the process.

Table 4.9 illustrates the growth of the Participatory Budget in relation to the municipal budget as a whole during the first six years of the Popular Administration in Porto Alegre. Table 4.10 shows the growth of community participation in Participatory Budgeting for the same period.

**Table 4.9 - Evolution of Participatory Budget in Porto Alegre**

| Year | % of the Municipal Budget |
|---|---|
| 1989 | 3.2 |
| 1990 | 10.0 |
| 1991 | 16.3 |
| 1992 | 17 |
| 1993 | 14 |
| 1994 | 17 |

Source: CRC/GAPLAN/PMPA (In: *Atlas Ambiental de Porto Alegre*, 1998)

**Table 4.10 - Community Participation in the Participatory Budget**

| Year | number of entities | number of people |
|---|---|---|
| 1989 | 250 | 403 |
| 1990 | 467 | 976 |
| 1991 | 503 | 3,694 |
| 1992 | 572 | 7,610 |
| 1993 | 650* | 10,735* |
| 1994 | * | 11,197*** |

Source: CRC, 1995 (in: Andreatta, 1995)
(*) Either imprecise or unknown; (**) 1st and 2nd phase; (***) 1st and 2nd phase, including thematic plenary sessions

These data illustrate that a positive correlation can be made between the increase in the amount of investment and the increase in the number of community entities and people participating in the process. This quantitative evaluation of the process reinforces the conditions of community mobilisation that Abers has termed the *demonstration effect* in her study of the participatory budget process (Abers, 1998: p. 56).

Our focus is not on the quantitative approach or the process itself, but rather on a qualitative analysis of how far these practices affecting the rise of the information process. In our view, the participatory strategy derives from an empowering conception of participatory practices on a city scale, which is embedded in a wider political project, that of the Workers' Party in Brazil.

At first, this strategy concentrated on dealing with the major structural problems of the *irregular city* so as to empower the excluded groups who were organised within the sphere of the urban movements. The participatory budget represented the principal means of reform of the State on a local scale. This strategy formed the first steps in the construction of a *utopian socialist project* (Genro, 1995) aimed at bringing about social justice and inclusion in the deeply divided society of Brazil. By dealing with *duality* on a city scale, the strategy aims to create favourable conditions for addressing the broad question of building bridges to unite the *dual society.* However, the designers themselves of the project recognise that this remains a political challenge which can only be overcome through profound ideological and cultural changes on a national scale (Genro, 1997).

**Urban governance and the movement of neighbourhood associations**

The re-emergence of popular mobilisation occurred in the late 1970s and early 1980s, and ran parallel with the waning of the military dictatorship at that time. This resurgence took the form of a social movement which demanded housing and basic infrastructure services. It was accompanied by a newly reorganised trade union movement which was supported by a growing number of opposition intellectuals and politicians in all the major Brazilian capitals, as well as the revival of a student movement. These urban movements gained organisational coherence and political legitimacy by being tied into a network of Christian Base Communities associated

with the Liberation Theology Catholic Church which was spreading all over the country at that time.[87]

In the case of Rio Grande do Sul, the movement of neighbourhood association was, at first, re-organised around an old nation-wide umbrella organisation - the Rio-Grandense Federation of the Borough and Neighbourhood Associations (FRACAB).[88] This encompassed an impressive number of Porto Alegre-based neighbourhood associations, which in the late 70s were organised to fight against central state policies, in particular the national housing policy run by the BNH. (Ferretti, 1993) The Federation was supported by a political coalition of left-wing politicians, intellectuals and community activists.

In 1983, a new city-wide organisation was created which reflected the re-organisation of the political forces into a plurality of parties. It was called UAMPA (Union of Neighbourhood Associations of Porto Alegre). The Union's main objective was to link together neighbourhood associations throughout the city and it was heavily involved in urban disputes from demands for housing to providing the poor communities with access to education and health (Navarro, 1997). The Union's leadership formed a coalition with the restructured populist left-wing movement PDT (Democratic Labor Party) and the emerging PT.

At the time UAMPA was created, the movement of neighbourhood associations was already grouped around regional organisations which linked adjoining neighbourhoods[89] (Abers, 1998). This regional grouping also resulted from resistance to the local government's urban renewal policies, which had systematically involved the removal and resettlement of a large number of slums located in regions near the town center in the late 60s and early 70s (Ferretti, 1993).

Two key phases in the expansion of the popular movement can be identified as a part of this re-democratisation. The first phase, which lasted until the mid 80s, witnessed

[87] It was out of this network of mobilisation that the PT was born and formally established as *'a coalition of radical unionists, social movements, church groups and left-wing intellectuals and politicians'* (Abers, 1998: p.42).
[88] See Navarro (1979: p. 189) for further information on FRACAB.
[89] See Abers (1998: p.43) on neighbourhood coalitions in Porto Alegre [the *'União de Vilas da Grande Cruzeiro'* (Greater Cruzeiro Neighborhood Union) and the *'Conselho Popular da Zona Norte'* (Popular Council of the Northern Zone)].

the development of a range of urban community associations which demanded the provision of a basic infrastructure and fought against the resettlement policies. Despite the politicisation of the union leadership, *clientelistic relationships* (Abers, 1998: p. 42) sprang up among the neighbourhood associations and the local state. The second phase, from the mid 80s to the early 90s, displayed the first signs of organised reaction against clientelistic and authoritarian relationships and was associated with the beginning of a wider debate about urban reform and the social function of the city, and this became a national constitutional debate (Ferretti, 1993, and Moura, 1993).

In 1985 UAMPA held its first city-wide conference; this brought together the leaders of 78 community associations who sought the democratisation of local government through popular participation in urban programs and policy-making (Navarro, 1997: p.189). This occurred during the first mayoral elections to be held in Brazilian metropolitan capitals in the post-dictatorship era. In Porto Alegre, the PDT candidate won, largely as a result of support by sections of the community leadership brought together by UAMPA.

The PDT local government turned out to be a major disappointment and failed to live up to the expectations of the popular movement. The neighbourhood associations led by UAMPA, and under the leadership of PT activists, started to press for channels of public participation and to open up a city-wide debate about the priorities of public investment. The PDT Mayor drew up a series of contradictory policies, from the revision of the master plan law to the passing of a special law designed to create a system of *Conselhos Populares* (popular councils),[90] and neither was properly implemented.[91]

This was also a period of economic and political turbulence throughout the country, and witnessed a retreat by the federal government from its promise to implement social policies, particularly the national housing policy which was allowed to collapse. It was a time when the radical sections of the popular movement launched a direct attack on urban property rights.[92]

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[90] See Ferretti (1993: p.273-275) on PDT system of *Conselhos Populares*.
[91] For an analysis of the PDT policies at that time see Abers (1998), Ferretti (1993) and Moura (1993).
[92] See Medvedovski (1993) and Almeida (1993) for further analysis the *'conjuntos habitacionais'* invasion Porto Alegre.

It was in this chaotic context, which was marked by a transition from authoritarian to populist relationships between the popular movements and local government, that the PT won the municipal election in 1989. Since then, the new municipal administration has formed a unique partnership with the popular movement and this has laid the foundation for innovative forms of *direct democratic practices*. The most successful of these has been the participatory budget policy - *'in which ordinary citizens are given control over the distribution of public resources'* (Abers, 1998: p.40).

**The participatory budgeting strategy and institutional planning**

There has been a good deal of discussion about the case of Porto Alegre. This has been fostered by professionals who are involved in the process and are interested in reflecting their own experience. The following analysis of the innovation process and its links with traditional practices of institutional planning draws largely on a critical review of the bibliography.

These changes entail the collective construction of a social learning process that may well hold the conceptual key for translating the experience into urban planning practices on a larger scale. The interrelation between the participatory budgeting strategy and institutional planning centres on the *insurgent* character of this strategy. It is related to the particular social context within which the strategy has been carried out successfully, or rather – the way the organisational practices from the social movement have been incorporated into the sphere of government and translated into the current method of popular participation.

It can be hypothesised that a paradigmatic shift in the relationship between local government and civil society has been taking place, and that this has led to the designing of innovative planning measures that challenge more traditional ones. This is demonstrated by the fact that antagonistic planning approaches and instruments for short and long term planning policies coexists, i.e., that a participatory budget strategy is being implemented together with the old master plan (1st PDDU) and that this has continued to regulate the development of the city until very recently. This is also clearly illustrated by the current municipal administrative structure, which has two

separate departments (Buchabqui, 1994 and Augustin Filho, 1994) in charge of municipal planning.[93]

This dual approach has brought about an unusual situation, where the dichotomy *praxis-theory* of the planning profession has been encapsulated within the sphere of government. It means that planning professionals from within the government are being challenged by a new system of power relations that affects both planning with the popular sections of social organisations, and taking action to deal with the fundamental contradictions of the dual city. The planners have been urged to enter into a new dialogue with the popular movement. After a long period of authoritarian practices, followed by a very brief period of left-wing populist tendencies, both sides have had to learn how to communicate on a more democratic basis. Not surprisingly, one of the main barriers to the implementation of the *participatory budget strategy* was the traditional approach of institutional planning in Porto Alegre.

The methods employed by the comprehensive *rational model of planning* had to be reviewed to keep up with radical changes in the planning praxis. The new praxis was concerned with changes in the political sphere of decision-making that were taking place both inside the municipal administration and in civil society organisations at large.

**- insurgent practices**

The conception of the participatory budget strategy is very simple and did not consist of an inherently new idea but rather, reflected an old requirement of the popular movement. To some extent, these demands were recognised by the national and local states; this is illustrated by the fact that a number of measures were incorporated in the national 1988 Constitution, to bring about direct or semi-direct democratic practices. These measures then spread to Porto Alegre where they became a part of the *Municipal Organic Legislation.* (Alonso, 1997)

[93] See Navarro (1997) on the role of the different municipal departments *SPM* (Municipal Secretariat of Planning) and *GAPLAN* (Planning Office) and *CRC* - (Community Relations Coordination).

The movement of neighbourhood associations, headed by UAMPA, fought for new channels of community participation in decision-making, in the course of the constitutional debate. Although they were defeated by the populist strategy of the PDT municipal government, at the time the PT won the municipal elections, UAMPA and the varied regional network of neighbourhood associations that supported the new government was largely mobilised again. (Navarro, 1997)

The participation of sections of the popular movement within the municipal administrative structure was an essential part of the participatory design strategy. This strategy was also related to the historical conditions required for organising the party (Abers, 1998: p.42). It comprised a large number of social movements, allied with the internal political practices of bottom-up decision-making that guaranteed PT party unity, despite the number of diverse ideological tendencies that make up the party structure. (Pont, 1997)

Another factor was the cultural background of the activists and leaders who were appointed by PT to take up key positions in the government. Most of them were engaged in organising social movements and struggles directed against the authoritarian state, although they had no previous experience of holding government positions, let alone of dealing with municipal administrative issues. The traditional municipal administrative organisation was highly departmental in nature. It was characterised by competition rather than cooperation, and had to deal with wide-ranging priorities. This meant that there was a real need for administrative reform before the participatory project could be embarked on. (Buchabqui, 1994)

In the initial period, there were doubts about the administrative and financial viability of the government itself, which caused difficulties in designing and implementing the participatory strategy. When the PT came to power, up to 98% of municipal revenue was devoted to paying salaries. It took over a year to implement a series of necessary measures before the government had funds available for even minimal capital expenditure.[94]

[94] See Abers (1998: p. 256); Verle and Muzell (1994); and Cassel and Verle (1994) for further analysis of the strategies for increasing revenue.

Although from the outset there was a political will to open up democratic channels which would facilitate participation in the new popular administration, it was not followed up by any political consensus or theoretical models. There was plenty of room for innovation and political negotiations, through which the participatory strategy could be built while it was being developed (Navarro, 1997). A gradual and experimental collective construction occurred which involved social actors, popular sections of the civil society organisations and the local government, all of which have been learning from practical experience in the last ten years in the course of three consecutive terms of the PT municipal administration. It is worth mentioning that the process has followed an interrupted development, under the aegis of three different PT Mayors.[95]

From the perspective of traditional planning, the conception of public participation was not new either. It has been formally incorporated in the 1st PDDU since 1979. The top-down approach embedded in the rational model of planning led to the creation of an ideal method of participation. This method consisted of designing a system of planning in which the - *Conselho do PDDU* (master plan council) would allow community participation (Oliveira & Barcellos, 1993 and Ferretti, 1993). The criterion for community participation followed a technically-defined density pattern, within which the community association movement was supposed to fit, rather than forming a model which represents the actual organisation of the movement. The 1st PDDU council had a largely consultative character and despite the concept of public participation has been a part of the institutional planning agenda, actual forms of popular participation in decision-making were never properly implemented.

The *insurgent* character of the new participatory strategy lies in bringing together social actors from both sides into the government - that is, from both the popular movement and the institutional planning tradition. What is novel about the participatory policy of the popular administration is that it has used a method of direct democratic construction to give a voice to the popular sections of civil society organisations for the first time. These social actors have played an active role in formulating a new model of social learning, both through the relationships between

[95] Olivio Dutra's government, from 1989 to 1992; Tarso Genro's government, from 1993 to 1996; and Raul Pont's government, from 1997 up to now.

local government and social organisations, and within the municipal administrative organisations and the bureaucratic apparatus inherited from the authoritarian regime.

**- between innovative planning instruments and master plans**

Two distinct phases can be distinguished within the process of designing innovative planning instruments that allow a gradual incorporation of insurgent participatory practices in the municipal administration. The first entails formulating and implementing a *participatory budget* strategy as a community grassroots process of decision-making in the neighbourhood scale. The second consists of an attempt to expand the participatory decision-making process to incorporate all sections of the civil society organisation, by formulating a city-wide participatory planning policy. While the first strategy achieved a dynamic equilibrium in social relations in the first five years it was put into practice, the second has proved to be a much more complex task.

During the first phase, a wide range of problems was encountered when carrying out the process of formulating and implementing *participatory budget* strategy. These difficulties arose from the political and ideological aspects of changes in power relations rather than the complexity of the urban problems the strategy aimed to solve. The crucial issue was how to reverse traditional ways to set the priorities for public investment and ensure that resources were devoted to the implementation of a basic physical infrastructure (especially improvements in sanitation and paving) in the poorest regions of the city - *the irregular city*. They were structural problems which had arisen in a process of thirty years of uneven urbanisation in Porto Alegre, and reflected well known needs, in both the municipal agencies in charge of public services and the deprived local communities.

The main task was how to reach a consensus about what was a fair distribution of the limited financial resources, proportional to the size of these structural problems. When seen from the perspective of internal interrelations within the institutional organisations, the political priority of the new administration, i.e. to take action on behalf of the *irregular city,* represented a radical change that put into question the very conception of this irregularity. This brought about an internal conflict which led to an

inner challenge to the rationality of the technical approach and the normative model of the planning system, as embodied in the city master plan.

The PT provided a political and administrative response to this impasse which was to adopt a strategic planning approach, that was heavily centralised and subordinated to the Mayor's office. A new planning office (GAPLAN) was created to co-ordinate the participatory process, instead of attempting to change the traditional planning system. Two key innovative planning measures were implemented under the auspices of the strategic planning team. A *participatory budget* was set up which aimed to create a short-term strategy for spending public funds in deprived regions of the city and, *the program of property regularisation*[96] was put into effect; this set out a long-term policy for dealing with the question of urban land property. Both involve defining urban policies for the irregular city - the central issue concerning urban reform and the social function of the city.

The participatory budget strategy was formed around a very simple methodology, which was largely drawn from the PT's previous experience of grassroots community development. It entailed setting up a series of community-based regional assemblies, organised into three communal cycles (*rodadas comunitárias*) with specific objectives. They were held in 16 different budget regions of the city, which had been partitioned in accordance with the new geographical criteria of community identity.[97] These regional assemblies bring together the community associations of each budget region to discuss problems and to respond to their local requirements, as well as having responsibility for electing regional delegates to take part in the *regional budget forums*. In the next cycle, the delegates met to discuss regional demands and priorities, while the community elected the councils for each region that would make up the *Conselho do Orçamento Participativo* (municipal budget council, or *COP*). The third cycle brought together councillors from every region to work out the final priorities for the annual budget. Their task was to fix the amount of resources that could be allocated for each group of regional requirements, and draw up the final draft of the municipal budget on behalf of the Mayor. The COP has no legal status so the Mayor's office has

[96] See Bonin (1993) for an academic approach to the program and Andreatta (1995) for examples of its implementation (Vila Planetário).
[97] See Abers (1998: p. 44-45) on the political/geographical strategy of community representation.

to submit the municipal budget to the *Câmara de Vereadores*[98] (municipal chamber) who are required to give their approval through a vote before the measures can officially become law.[99]

As well as making significant improvements in organisation and methodology, these committees have made great progress in reaching a consensus and defining their own norms for running the council efficiently; (these are agreed by all the participants each year). This work consists of drawing up an internal set of regulations which means that the councillors define the criteria that will be used in the following year - to mediate conflicts, determine the electoral procedures to be used in regional assemblies, and raise questions about the technical criteria employed by the different municipal agencies. As a result of this process of negotiation between council members and the administration, the strategy has been improving while becoming increasingly more complex, and there have also been improvements in the way the administration supports the process. (Abers, 1998 and Navarro, 1997)

The second analytical phase involves expanding the process of decision-making which, since 1994, has added five new *forums* to the participatory budget structure which are called, *'plenárias temáticas'* (thematic forums). These are responsible for the following areas: (a) education (b) health and social services (c) transport (d) organisation of the city (e) economic development. They operate in a similar way to the regional forums which are organised in cycles; two large meetings are held, including a long negotiation process and the election of delegates and representatives to participate in the *COP,* along with the regional councillors. (Abers, 1998: p.49)

The creation of the *thematic forums* was the result of a political strategy to widen the participatory process that paralleled the development of the participatory budget. This comprised a lengthy political movement, which started in 1993 with a project termed *'Porto Alegre Mais - Cidade Constituinte'* (Porto Alegre Plus - Constituting City)[100] and ended up in 1998 with the formal proposal of a new master plan for the city

[98] See Mello and Reston (1991: p.8-11) for further information on municipal government organisation, separation of powers and mayor system in Brazilian municipalities.
[99] See Navarro (1997) and Andreatta (1995) for a detailed description of the history of the constitution of the participatory budget process. See also Abers (1998) for a critical historical review of the process and Souza (1997) for a description of the participatory budget methodology.
[100] See Alonso (1997: p. 57-73) for further analysis of this political debate and the design of new urban policies.

(PDDUA). The main goal was to organise a city-wide public debate in an attempt to form a consensus about how to define a new social and political project for the future of the city as a whole. (Navarro, 1997)

This process created the right political conditions for the following: opening up a traditional planning system, introducing lively, public participation through a similar methodology of collective assemblies and bringing together a variety of discussion groups of different shapes and sizes to hold in-depth debates over a period of four years. It was in effect a city-wide movement which sought to bring into the participatory process every type of social organisation - labor unions, professional groups, business organisations, co-operatives, non-governmental organisations and environmental movements. The whole process converged on two important events, the *'Congresso da Cidade I e II'* (City Congress I and II), in 1993 and 1995 respectively, that formed the basis for the process of reformulating the city's master plan. To start with, the reformulation of the master plan (1st PDDU)[101] was a lengthy process and a new master plan (PDDUA)[102] was drawn up in 1997. (Burmeister, 1997)

Although the process was intended to follow an open and dynamic bottom-up participatory methodology, the resulting new master plan does not reflect a radical paradigmatic shift away from the master plan it superseded. The new master plan aimed to incorporate a popular participatory approach, while following the methodology of the traditional master plan. After two years of countless meetings and discussions, the preparation of the final document went through a 'technical translation' process, which meant that planners from within the administration were supposed to put together a package which reflected the collective will and expectations for the future of the city.

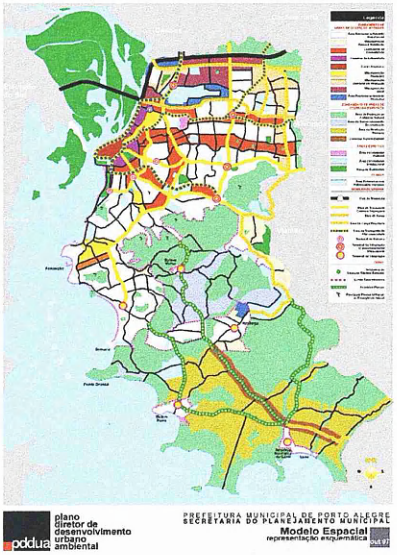
The result, as can be expected, was a hybrid body of law that attempted to incorporate all the new legal planning measures, programmes and projects, that had been drawn up or planned by a wide range of municipal agencies, under the wide conceptual umbrella of traditional planning. This legislation consisted of a planning approach which was to a large degree spatial design orientated, and based on the definition of a new spatial

[101] Op. Cit. (66)
[102] The Municipal Chamber spent more than two years on political negotiations until its final approval in late 1999.

model, which remained very similar to the previous one. Although the new spatial model introduced a large number of conceptual changes, such as acknowledging the presence of the irregular city, it lacked precision in the way it defined the instruments for coordinating its broader implementation of participatory decision-making, termed *'sistema de gestão do planejamento'* (system of planning management).[103]

The new *'spatial model'* proposed in the 2nd PDDUA, aimed to *'re-draw'* the use and forms of occupation of urban land, as a backdrop for strategic action. The notion of strategic action derived from the debates and proposals within the broad process of public consultation about the future requirements of the city. The design of the new spatial model conformed to the general guide-lines of seven key strategies, which were agreed on in public debates and arranged into specific fields: (a) urban structuring (b) urban mobility (c) use of private land (d) environmental conditions (e) economic support (f) city production (g) the system of management and planning. Each strategy corresponded to a set of long-term programmes and projects.

**Figure 4.4 - Porto Alegre 2nd PDDUA spatial model**




Source: SPM, Prefeitura Municipal de Porto Alegre, 1999
(http://www.portoalegre.rs.gov.br)

The plan encompasses two different strategies concerning the regular and irregular city, respectively. The third Strategy refers to the normative plan that regulates the *regular city*, it has worked out by revising the traditional planning instruments for

[103] See *2nd PDDUA - 'Projeto do 2nd PDDUA comentado'*, March 1998, Porto Alegre/ PMPA, for a brief overview of the master plan law and part VI, articles: 157 - 163, for the definition of the management system.

regulating the city morphology, and embodies the methodology of the previous plan. The sixth Strategy, on the other hand, is concerned with the *irregular city*. It aims to implement a local housing policy that includes the informal housing market and enables the municipal administration to play an active role within the housing and urban land market by allowing them to be adopt.[104]

Some innovative planning measures for dealing with the irregular city were already in place when the new plan was formulated. These formed part of the *programme for property regularisation*, mentioned above, and included: (a) the *concession of urban property use* (1991) (b) the constitution of a *municipal land bank* (1992) (c) defining the *social function of urban property*; which allowed the *'vazios urbanos'* (vacant lots) to be identified in 1993 (d) the *'solo criado'* (created lots) and *'fundo de desenvolvimento urbano'* (urban development fund), both in 1994. The new plan also attempts to strengthen the role of *'operações concertadas'* (partnership projects) in strategic areas, either within the formal or informal city. In practice, these partnerships have already been formed through intense informal political negotiations. (Porto Alegre - 2nd PDDUA, 1997)

The 7th strategy encompasses the definition of a wide-ranging process of participatory planning. It introduces the idea of regionalisation and decentralisation to the previous master plan model of participation (1st PDDU), and seeks to adopt the participatory methodology, as employed in the budget strategy. The three cycles are translated into three separate levels of participation: global, regional and local. The global level comprises the *Conselho Municipal de Desenvolvimento Urbano Ambiental* (urban municipal council for development of the environment),[105] which is in charge of the city's policies and programmes. The regional level involves drawing up *'Planos de Ação Regional'* (regional action plans) inside each region. And finally, at the local level, it includes the *'UEUs - Unidades de Estruturação Urbana'* (departments of urban structuring), a geographic planning sub-division, within which social organisations are allowed to propose changes in the rules of the 2nd PDDUA.

[104] This is a similar mechanism to that defined in the 1st PDDU where the new approach only incorporated the local community participation in its definition of these special urban patterns.

[105] The planning council encompasses 25 members: one president of the council, eight government representatives (federal, state or municipal), eight non-governmental entities and, eight community representatives of each planning region. (Porto Alegre - 2nd PDDUA, 1997)

The proposed methodology also acknowledged that apart from the political implications of implementing such a broad process of planning participation, there is the question of granting access to planning information so that the wide range of civil society organisations and planners can communicate more easily. Although the communicative approach to participatory planning is not clearly defined, two systems have been proposed - the *Sistema de Informações*[106] (information system) and *Sistema de Avaliação de Desempenho Urbano*[107] (system for evaluating urban performance).

The new master plan ushered in additional channels for popular participation that are intended to extend the decision-making practices of the participatory budget experience to long term policies, affecting the whole city. It is still too early to evaluate whether or not these instruments are going to be implemented, let alone their chances of success in articulating the long term policies proposed in the new law to the short term interests of the popular movement.

The resulting master plan shows no evidence of any major paradigmatic change in the rational technical planning approach. The traditional means of planning, predicting, controlling and ordering the future development of the city by designing a desired spatial model, are still in operation. Most of the innovative planning instruments, aimed at promoting the social functioning of the city, were already in place before the new plan was conceived. The changes proposed in the new law seem to be more ideological (in the sense that they hope to achieve *social justice* by a new ordering of the urban form), than methodological (the proposition of new planning practices). Our view is that the theoretical misconception in the use of the *master plan* model of planning lies in the fact that it is unable to incorporate actual bottom up decision-making processes.

On the question of the lessons to be learned from grassroots participatory practices in budgeting experience, we support Abers' conclusion, that as a result of this social learning process the participants have acquired a number of democratic skills. Among

[106] This is not a new concept; it was already part of the previous master plan. Yet it officially introduce the use of GIS technology. (Art.46 in: Porto Alegre - 2nd PDDUA, 1997)

[107] This is an innovative approach to replace the former planning system carried out in cooperation with the Urban and Regional Planning Post-Graduate Programme of the Federal University of Rio Grande do Sul. (Art.47-48 in: Porto Alegre - 2nd PDDUA, 1997). See Marasquin (1998) and Krafta (1997) for a further description of the system.

these she draws attention to the ability to achieve *collective decision-making* and engage in *negotiating* with the administration (Abers, 1998: p. 63).

Her analysis of the collective budgeting process of decision-making corroborates our theoretical propositions, concerning the constructivist epistemological standpoint of the participatory practices. This position is based on a socio-cognitive approach to an analysis of the construction of these social relations, which highlights the learning aspects of participatory practices.[108]

Abers also claims that as people gain experience, they learn how to combine their effort to achieve mobilisation in order to *'get the goods'* with an understanding of the needs of others. This implies an ability to develop a *spirit of cooperation* with what she terms *ethical solidarity* (Abers, 1998: p. 60). She stresses the role of the administration in fostering the development of this *ethical solidarity* so that it becomes a more advanced and complex form of *negotiated solidarity.* This encouragement has spread about a *culture of rule making* in the process of defining regional priorities to meet the various needs and deficiencies of each neighbourhood (Abers, 1998: p. 62).

Abers' analysis of the learning experience within the budgeting process, bears out the validity of our socio-cognitive approach to understanding the learning process in participatory practices aimed at *cooperation.*[109] She has demonstrated that there are no 'quick fixes' in the construction of democratic, decision-making practices. The learning process is time-consuming and demands a great deal of effort on the part of the social actors in both sides of the process - social organisations and local administration. She insists that for citizen participation to be feasible, a great deal of active support on the part of the State is necessary (Abers, 1998: p. 64).

She acknowledges that government persuasion can be manipulative and that it is a subtle matter to define the limits of the process (Abers, 1998: p. 65). This factor has a bearing on the epistemological position taken by the participants in the process, as well as the degree to which they are aware of the cognitive changes taking place outside their political positions. Her findings confirm our own socio-cognitive theoretical

[108] See Chapter 3: sub-section 3.3.1.
[109] See Chapter 3: sub-section 3.2.1.

propositions regarding the collective construction of new planning knowledge aimed at the production of a communicative rationality.[110]

The challenge of how to push the participatory process beyond the small, local scale of the regional budget forums has led to the holding of *thematic forums* and a number of other council's meetings in areas such as housing, transport and culture. The purpose of these *councils* is to open up new channels *'for broader policy arenas to an increasingly qualified participatory populace'* (Abers, 1998: p.65). Yet Abers argues that just opening up new channels is not enough.

The new channels of participation proposed within the 2nd PDDUA gave rise to new and more complex challenges for the interrelationship between the municipal administration and the social organisations. This complexity is owing to the scale of the problems involved in the targeted master plan policies, which have expanded from the local community sphere to a city-scale dimension. It is also accounted for the plurality of the social, economic and political interests involved, since they attempt to encompass the different sections of the civil society organisations.

The participatory channels outlined in the master plan require the use of new planning instruments to support their implementation - the *information system* and the *support decision system*. Although they are not clearly defined within the new law, it suggests that information communication technology may be used to improve participatory practices, a fact which encourages us to explore the information process in Porto Alegre further.

### 4.3.2. www.portoalegre.rs.gov.br is this a space for popular participation?

Under the auspices of the popular administration, PROCEMPA (the Municipal Company of Data Processing of Porto Alegre) implemented a radical change in its economic and technological performance. The mixed company had to re-design itself; this meant moving away from a position of technological dependence and a reliance on the exclusive use of main-frame technology and proprietary systems, towards a decentralised model based on open networks. There was a need to spread the use of

[110] See Chapter 3: section 3.3.

personal computers to all departments of the administration, while establishing the interconnection via the local networks. In 1996, PROCEMPA took a step further and launched an Internet access service called *PortoWeb*.[111] This became the municipal Internet service provider for all departments of the administration, and a commercial supplier of Internet access for private users (Santos 1997).

Procempa/PortoWeb has also been responsible for the design, implementation and management of the municipal site - *prefeitura virtual* (virtual city hall) or, what is now *www.portoalegre.rs.gov.br*. The design of the institutional site has been changing in recent years, as a result of technological developments and struggled to improve its performance both as a communications channel to promote the interests of the municipal administration and as a means of allowing citizens to take advantage of online public services. The latest version of the Web site[112] was designed to incorporate most of the municipal public services which were already electronically available, as well as offering information on the policies, programmes and projects which have been developed within each department of the municipal administration.

At present, the *prefeitura virtual* includes a wide range of municipal public services and information, but it still largely relies on hypertext interface[113] (mostly text and graphics), within which the users' interaction is essentially not synchronic, via e-mail communication.[114] From a conceptual perspective, the design of the interface follows the traditional pattern of the municipal administrative organisation. It largely consists of a display of linear sequences of information or/and services for each administrative unit. The navigation through the site and the examination of the contents of each administrative unit also show the different levels of IT development within the units. It suggests there is a fragile structure of shared information and horizontal integration among them.

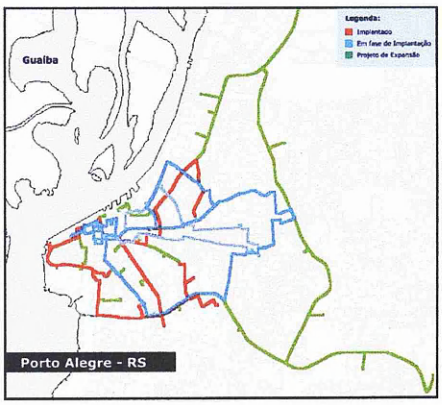
The *Popular Administration* has been facing three main types of barriers in the design and implementation of its local information technology strategy. The first stems from

[111] See http://www.portoweb.com.br/
[112] See Porto Alegre Web site at http://www.portoalegre.rs.gov.br In Jun 1999, PROCEMPA receiving a national award *Cidadania na Internet* (citizenship on the Internet), granted by the *V Congresso Nacional de Informatica Publica* (V National Congress of Computing in Public Organisations). See also http://www.conip99.com.br/
[113] See Web site (Op. Cit. 112)
[114] This is related to the local availability of bandwidth (amount of data and the speed).

the technological gap in the area of local institutions and the need for modernisation in every sphere of the municipal administration. The second concerns a more complex problem arising from the interrelation between decentralisation, access and management of municipal information, and the centralised organisational model of the inherited bureaucratic structure. The third barrier result from the link between the political schedule of PT, which prioritises popular participation in all levels of the public administration, and the ability of the new administration to encourage every citizen to get *universal service* and *open access* to the municipal public services on the Internet.[115] This encouragement poses a fundamental challenge which is how to design a local strategy that grants Internet access to the sections of civil society which are usually excluded.

A brief examination of PROCEMPA's achievements during the 90s suggests that the institutional challenge to bring about technological updating has achieved successful results so far.[116] The company had managed to bring about an improved level of technological infrastructure, together with a successful training programme and to keep developing human resources. The next phase of technological updating is already in progress, largely due to efforts in pushing ahead with the implementing of the project - *infovia* (the info-highway of Porto Alegre).[117]

**Fig. 4.5 - The info-highway of Porto Alegre**




Source: PROCEMPA, Prefeitura Municipal de Porto Alegre, 2000
(http://www.portoalegre.rs.gov.br)

[115] By *universal service* we refer to the material conditions of connection (basic telephone service) and affordability for all citizens, while by *open access* we mean the ways that we use connection to access the services, including factors such as easy-to-use interfaces, interoperability, security, privacy and usability.
[116] See PROCEMPA' Web site at http://www.portoalegre.rs.gov.br/procempa/ for a full description of the project.
[117] See *'Porto Alegre Tecnopole - Termo de Referência'*, Prefeitura Muncipal de Porto Alegre, (1995) and the Web site (Op. Cit. 116) for the map of the info-highway implementation in Porto Alegre.

When exploring the second and third types of potential barriers, account should be taken of the interrelationship between the local government strategy for the social use of IT and the constraints (physical and social infrastructure) which hamper its implementation throughout the city.

**Planning, popular participation and the municipal IT strategy**

The way the context for a successful participatory budgetary strategy has been set out and the stress laid on the beneficial performance of PROCEMPA in providing public electronic services for citizens, makes it surprising that one does not come across many people when navigating through www.portoalegre.rs.gov.br/. The only space where one might eventually meet people is the new link to the municipal schools and the students' *chat*. One wonders where citizens can be found who are participating in the cyberspace of the *virtual prefeitura*? One can guess that it might be by linking up with the participatory budget pages, but disappointment is again in store as there is nobody around but just plain textual information about the budgetary process. What will be found are the following: the timetable of the meetings; charts showing the forecast for the coming year; some graphics displaying a map of Porto Alegre with the city divided into the 16 budgetary regions; a list of all the members of the COP - *Participatory Budget Council* (most without e-mail addresses); the COP internal regulation document; information from the previous financial years and, finally, the traditional impersonal e-mail as a means of contact.

A second means of access would be to get into the SPM Web page, where one would find the latest e-version of the 2nd PDDUA. The hypertext interface allows access to the text and maps that illustrate the spatial model and display the virtual output of a geographical information system application for the city, which is not yet available for online interaction. There is also a search engine where one can find information about planning permission and planning regulations. The only other way we can get in touch with somebody is via the impersonal e-mail address of the SPM. These features incorporate the pattern of navigation and interaction through most links to the different units of the Popular Administration.

There seems to be a basic contradiction, between the conceptual paradigm that determined the design of the interface of the *virtual prefeitura* and the political principles of the popular administration. There is a divergence between the concepts of *popular participation* and *open access* to the public system of information within the institutional cyberspatial representation, all of which suggests that there is something else going on underneath the interface displayed by the *prefeitura virtual*. The question that remains to be addressed is - open access to whom? How does this conception of open access relate to cyberspatial popular participation and social inclusion?

**Cyberspace and popular participation: towards a qualitative approach**

The answer to these questions can be regarded as covering a range of complex problems concerning urban governance in the information age. In developing countries, cities can be regarded as the material expression of an uneven distribution of wealth and this situation is aggravated by the information process and the networking logic, which only the widening of the gulf between rich and poor. Our analytical propositions lead us to believe that cyberspatial technology, being a social construction, might well entail a new dimension for social learning and inclusion, if embodied within a political project geared towards social change on a local scale.

This brief examination of the contextual conditions involved in constructing the *prefeitura virtual* in Porto Alegre brings to light the full complexity of the interrelationship between the political will and the praxis of implementing the new technology. In the first place, it demonstrates that there is a fundamental contradiction between the ability of urban government to promote open access to information communication technology and the implementation of a local policy to use IT and foster social inclusion and popular participation. There seems to be no clear interrelation between the contents of the new master plan, the participatory budgetary process and the municipal informational strategy, apart from the traditional systemic approach to organising and displaying information.

If our analysis were confined to the quantitative aspects of this strategy, it would be worth seeking for innovative popular participatory practices further. The *cyberspatial citizens* who, so far, manage to get the required *universal services* of the *prefeitura*

*virtual,* comprise the sectors of the traditional cultural and social elites. They comprise the small percentage of citizens that have *open access* to Internet facilities in Porto Alegre.

However, if we take account of the qualitative indicators, such as the innovative projects and partnership initiatives, it becomes apparent that what we at present see through the Internet windows are just hints of a wider process involving a change in social relations. This is the very beginning of a paradigmatic shift in information communication and the development of knowledge through the use of the new technology, which is taking place on a local scale. In searching for the interrelations between innovative participatory planning practices and the use of cyberspatial technology, the focus of our investigation must centre on the qualitative aspects of the changes in social relations, within the processes in development on a local scale. This defines precisely the goal of our empirical investigation in the case study of Porto Alegre and will be explored in the next part of this thesis.

*"Theoretical practice must be constructed as a continuous dialectic between the militant particularism of lived lives and a struggle to achieve sufficient critical distance and detachment to formulate global ambitions."*

*David Harvey (1996:p.44)*

# Part III – The Case Study: Advanced Information Technology and Citizen Participation in Porto Alegre's Popular Administration

Chapter 5

# Case Study Methodology

## 5.1. Introduction

This chapter deals with the methodological aspects of the case study research strategy. It was carried out with the purpose of attempting to understand the conditions required for a successful use of advanced information communication technology in participatory urban planning aimed at social change. To start with, there is a discussion about the features, as well as the advantages and disadvantages of a case study strategy. The methodological aspects of qualitative research are examined insofar as they apply to the case study and a broad approach has been adopted to study the use of cyberspatial technologies for social learning in participatory urban planning on a local scale. Following this, the empirical setting is described and then the research questions and the initial hypotheses are introduced. The latter are formulated to explain the use of advanced information communication technology and differences in levels of participatory performance, in the context of the urban policies of the *Popular Administration* in Porto Alegre.

An account is given of the methods of data collection and the selection-process of the subjects for the case study by means of a research design. Finally, the fieldwork methodological adjustments are reported.

## 5.2. General Methodology

The *case study approach* was selected from a number of possible ways of carrying out research in the Social Sciences. The advantages of this strategy was its ability to find answers to *how, what* and *why* questions when considering the interrelation between the rise of informational space and participatory practices in the Popular Administration of Porto Alegre. The need to focus the investigation on the context of the *real city* as well as the *virtual city*, was another important reason for choosing this research strategy, especially in view of the fact that there were benefits in dealing with

contextual conditions. A further reason was the recent expansion of the use of advanced information communication technology within urban governance.

The case study strategy was designed to fulfil three main goals. The first was to articulate the empirical work with a multidisciplinary theoretical framework, and thereby investigate the development of the information process in participatory practices of urban governance. The second was to show how the data collected in Porto Alegre was of relevance to the initial questions of the investigation, regarding the special features of the information process on a local scale. The third was to allow us to make analytical generalisations on the basis of the evidence that had been gathered. It was hoped that this could eventually contribute to a better comprehension of the role of advanced information communication technology, aimed at social change, in the broad context of urban environments in the periphery of the global network.

### 5.2.1 Case study research strategy

The case study of Porto Alegre is aimed at finding out *how* the use of advanced information communication technology might empower the process of citizenship participation within the context of the Popular Administration. It seeks to clarify *what* the political, technological and socio-cognitive specific conditions are that might account for the success of participatory practices on a local scale. It also explores *why* the process of implementing advanced information communication technology in urban governance does not seem to mirror the process of citizen participation in the Popular Administration of Porto Alegre.

It is hoped that this methodological approach will offer valuable support to our investigation of two contemporary and parallel phenomena, the development of informational space, and participatory practices of urban governance, in the real life context of Porto Alegre. At the same time, it should also throw light on the fact that the boundaries between the two processes and the urban context are not yet clearly apparent.

The case study strategy thus, goes beyond being merely a design feature or a means of collecting data; it is intended to be a comprehensive research strategy that comprises an all-embracing method which incorporates specific approaches to data collection and data analysis. Three of these approaches stand out as having a particular bearing on the case study strategy:

- 'it is able to handle technically distinctive situations in which there will be many more variables of interest than data points, and as a result -
- it relies on multiple sources of evidence, with data needing to converge in a triangulating fashion, and as another result -
- it benefits from the prior development of theoretical propositions to guide data collection and analysis' (Ying, 1994: p.13).

This methodological strategy is open to criticism when regarded as a method of data collection. A common error among social sciences researchers has been to confuse case studies with a specific method of data collection, such as *ethnography* or *participant-observation.* When the role of case studies is regarded as a formal research strategy, we share Ying's view that the cause of misunderstanding often lies in the historical origins of this methodological approach (Ying, 1994).

Platt provides a historical overview of American methodological thinking and traces the practice of doing case studies back to three factors; the way life histories have been conducted, the work of the Chicago school of sociology, and casework in social work. She states that a case study strategy comprises:

*'A logic of design a strategy to be preferred when circumstances and research problems are appropriate rather than an ideological commitment to be followed whatever the circumstances'* (Platt, 1992: p. 46).[1]

Qualitative research in urban planning follows a similar historical path and has its roots in several academic disciplines of the Chicago school, including the social sciences and humanities. On this question, Tesch states that:

*'(...) before the term **qualitative** was common, sociologist who had no interest in setting up experimental conditions or conducting quantifiable surveys simply called their activities **fieldwork** and their method of data collection **participant observation**'* (Tesch, 1995: p.21).

[1] Platt, J. (1992) *'Case Study' in American methodological thought.* Current Sociology, 40: p.17-48, as referred by Ying (1994: p.12).

A methodological distinction needs to be drawn between *case study strategy* and *qualitative research*, as the two areas are prone to mix up quantitative and qualitative evidence in various ways. Ying thinks this confusion is due to the approach of *'some investigators'* who *'distinguish between qualitative and quantitative research not on the bases of the type of evidence, but on the basis of wholly different philosophical beliefs'* (Ying, 1994: p.14).

Another common concern about case studies, commonly regarded as a considerable disadvantage, is that they provide little scope for making scientific generalisations. However this view is more likely to be a traditional prejudice than a disadvantage in itself. Ying is one of those who disapprove of this prejudice and says that:

*'Case studies are generalizable to theoretical propositions and not to populations or universes. In this sense, the case study, like the experiment, does not represent a "sample", and the investigator's goal is to expand and generalize theories (analytic generalizations) and not to enumerate frequencies (statistical generalization)'* (Ying, 1994: p.10).

This characteristic turned out to be a considerable advantage when it came to designing the research strategy for Porto Alegre. The goal of this case study is to explain the information process on a city scale, and thereby seek to obtain a better understanding of the role of collaborative/participatory planning practices within information space. This applies to the special features of the political project of the Popular Administration, as well as the particular conditions that might, eventually, help to combat inequalities in the access to information technology, on a local scale. It means that, we search for analytical generalisations that can be made about the theoretical propositions on participatory planning aimed at social change within informational space, instead of using the case-study of Porto Alegre as a sample of the cities in the periphery of the global information communication technology network.

When examined from the perspective of a traditional social research paradigm, the trustworthiness of the findings yielded by the strategic research approach, their internal and external validity, and their reliability and objectivity can often be challenged. Case studies investigators, however, claim that this strategy is indeed trustworthy. Ying, for example, prescribe a set of *'four logical tests to judge trustworthiness, credibility, confirmability and data dependability'* (Ying, 1994: p.32) of any given research design, which are common to all social sciences methods.

Furthermore, he also claims that the test of constructing validity is especially problematic in case study research. Critics of case studies often point to the fact that a case study investigator fails to work out a sufficient operational set of measures and that 'subjective' judgements are used to collect data. He mentions three devices for overcoming these constraints, which this researcher intends to pursue. The first is the use of *multiple sources of evidence* as a way of encouraging convergent lines of inquiry. The second is to set up a *chain of evidence* and the third is to have the draft case study report reviewed by key informants. Finally, he recommended that these devices be applied throughout the subsequent conduct of the case study, and not just at the beginning (Ying, 1994: p.34-35).

This research work has been governed by these tactics both in designing the case study and in analysing findings.

### 5.2.2 Empirical setting: urban governance in Porto Alegre

The aim of this research strategy has been to investigate the possible links between participatory practices of urban governance and the potential use of advanced information communication technology to enhance citizen participation in the specific context of the Popular Administration of Porto Alegre. In Chapter 4, the singularities of the case of Porto Alegre were discussed in the wider context of Brazilian Municipalities. The Popular Administration was singled out as representing a successful experiment in participatory practices in urban governance, while comprising a local political project that parallels the re-structuring of local governments and the democratic process in Brazil as a whole. It was also pointed out that the information technology revolution is posing a challenge to the structural socio-economic inequalities of Brazilian society and, the resulting social and spatial problems that need to be faced on an urban scale.

In earlier chapters, a theoretical framework was devised to ascertain the role of information technology in promoting social change which involved a dialectical process of socio-spatial polarisation and segregation. The question which has to be addressed in empirical terms is - *how the use of cyberspatial technologies promoted by local government policies, might act in opposing the networking logic of social*

*exclusion, which is dominant in the global scale.* Hence, the empirical setting of this case study derives from the social construction of this new spatiality (*informational space*) in the local context of the Popular Administration of Porto Alegre.

A set of theoretical propositions have been laid down which are in line with our multidisciplinary framework and are intended to govern the empirical investigation of the social construction of this new spatial form and its interrelation with the urban form, on a local scale. These propositions were designed to cover three theoretical areas and their interrelation with advanced information communication technology: urban space, urban planning and socio-cognition. They comprised the three dimensions of theoretical propositions that guided the formulation of the research questions and working hypothesis and helped determine the boundaries of this empirical setting.

The first theoretical dimension refers to the interrelation between urban space and information technology, and encompasses the field of *virtual geography*. Our central theoretical proposition states that the *dominant networking logic* leads to the fragmentation and segregation of cultural codes within the *network society* on a global scale. However, the fact that it is a dialectical process means that informational space might well allow the development of *networks of social change*, on a local scale, when supported by an adequate political project which is aimed at creating new cultural codes to link these diverse patterns.

On the question of the second dimension, which comprises the use of information technology in urban planning, our main proposition refers to participatory practices aimed at social change. Our argument is that *social interaction* within *virtual environments* might encourage the development of *autonomy* and *cooperative practices* through participatory processes. This is provided that they are connected with the development of public policies that promote social learning practices for the development of *grassroots community* on a local scale.

The third dimension is concerned with the socio-cognitive aspects of the use of information technology in urban planning and the development of an epistemology of social learning for planning practices. We suggest that information technology might

enhance the processes of *social learning* and the development of *new knowledge* through participatory practices, as well as decision-making processes, when backed up by a *constructivist* socio-cognitive approach. This process of developing new knowledge might enable the construction of *new cultural codes* to occur, and hence promote the *social integration* of these grassroots communities through *networks of social changing.*

By focusing on the social construction of *informational space,* in the context of the Popular Administration of Porto Alegre, we are able to understand this empirical setting as embracing a set of urban policy strategies that are related to the development of three processes of urban governance, insofar as they apply to these theoretical dimensions. These processes include the following: the information management process, the urban planning process and the participatory budget process. These real life processes involve complex social and political structures that sometimes overlap and have many intersections. They encompass four city agencies of the Popular Administration, and have been divided into three sets, following a methodological procedure in line with the empirical purpose of this research strategy.

With regard to the theoretical framework, the role of the social actors and the power relations they bring about, are key aspects of the social construction of this new space aimed at social change. In our view, these power relations, within information space are concerned with *knowledge building.* Hence, social actors engaged in processes of social change should also be involved in *social learning relations.* This implies that *social spatial relations* and *social learning* are the main analytical concepts that govern this empirical investigation throughout these three analytical dimensions. When considering urban governance and the public policies aimed at social change, which are taking place in Porto Alegre, two levels of social relations must be considered:

- *group* social relations, related to the participation of the different sets of social actors involved in each process
- *inter-individual* social relations, involving the participation of the whole set of social actors.

Consequently, there is a need to investigate the characteristics of both the group (or collective) and the inter-individual social relations that account for the social construction of information space in the context of the Popular Administration. This is why the case study methodology has been employed within a *qualitative paradigm* (Yin, 1994). We believe this is the methodological approach which can provide the most suitable answers to *what, how* and *why* questions that arise from the interrelations between these three processes and the development of information space, in the local governance context of Popular Administration in Porto Alegre.

The above reasons account for our methodological decision to study the Popular Administration, as a *single* and *unique* case among Brazilian cities. Its uniqueness lies in the fact that the right political conditions exist for the participatory process to flourish in urban governance. In fact, although its activities are conducted on a local scale and its peripheral position in the global network, in the last few years, it has become a reference-point for municipal administrations interested in citizenship participation throughout the world. It is also a special case in the planning practices of Brazilian municipalities, and deserves further investigation because of the singular nature of its participatory practices and the way they are geared towards empowering grassrooted community. Indeed, it seems reasonable to hypothesise that it might well turn out to be a unique case study for exploring in greater depth the potentialities and constraints of *insurgent planning practices* within *informational space.*

From a methodological perspective, this strategy was designed as a *single embedded research case* (Yin, 1994) consisting of three ***units of analysis***,[2] which covered the three processes:

- The Information Management Process (**P1**),
- The Urban Planning Process (**P2**) and,
- The Participatory Budget Process (**P3**).

Accordingly a set of three ***subunits of analysis*** [3] was also selected. The four city agencies of the Popular Administration of Porto Alegre, which are responsible for

[2] From this point on, the three processes that comprehend the units of analysis will be referred to as **P1, P2** and **P3.**
[3] From this point on, the three subunits of analysis and their respective city agencies, will be referred to by their short form: **SU1** - PROCEMPA; **SU2** - SPM; and **SU3** - CRC and CAR.

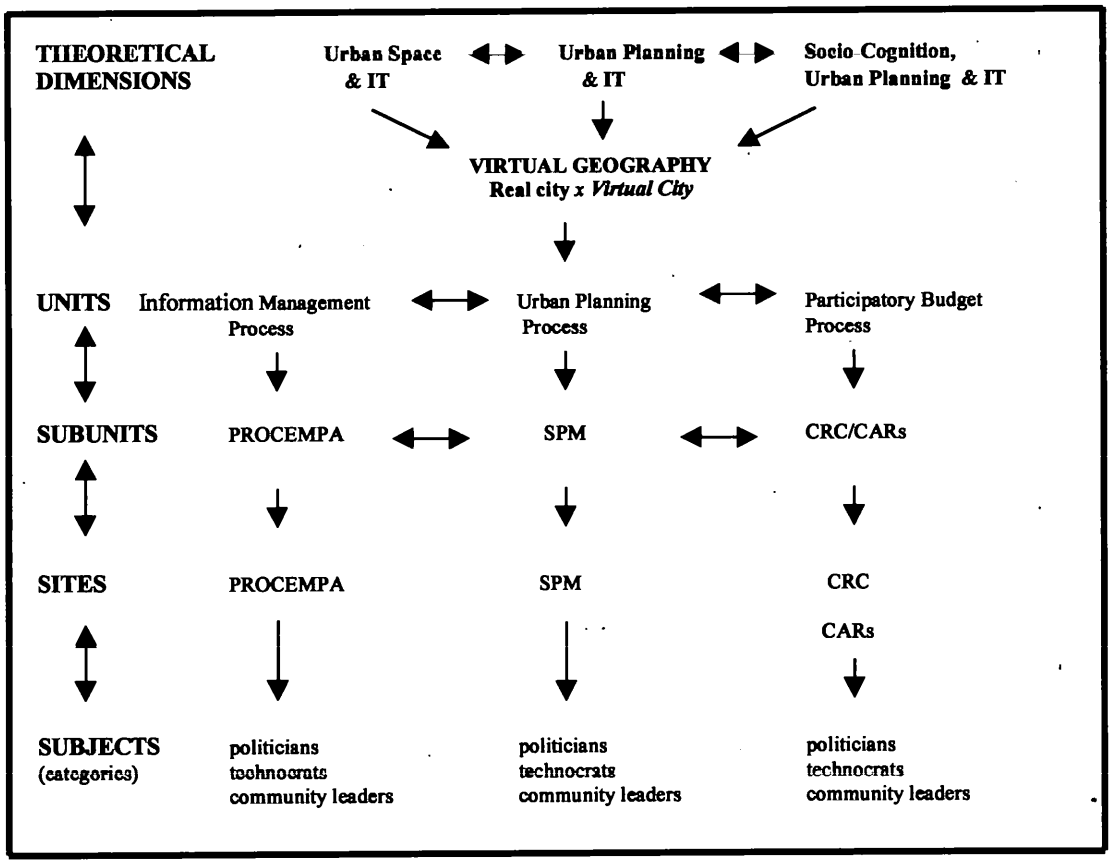
information management, urban planning and participatory budget processes, made up these three subunits which are as follows:

- **(SU1)** PROCEMPA – Data Processing Municipal Company of Porto Alegre;
- **(SU2)** SPM – Municipal Planning Secretariat;
- **(SU3)** CRC – Co-ordination of the Relationship with the Community and CARs – Regional Administrative Centres.

Finally, the empirical setting also incorporated ***sites of analysis*** within each subunit that consisted of a set of real places (government agencies), where the social actors might interact with the virtual worlds (*cspace/cyberspace*). From this cast of social actors a set of ***subjects*** were selected for the investigation. These subjects were divided into three analytical categories within each sub-unit of analysis, consisted of ***politicians***, ***technocrats*** and ***community leaders***.

The diagram in Figure 5.1 shows the methodological structure of this research strategy.

**Figure 5.1 – Diagram of the Case Study Methodological Structure**



This methodological procedure was in line with our theoretical framework and sought to distinguish between two main types of social spatial relations. *Group* social relations within each unit of analysis were investigated to establish power relations and the role of social actors in the development of the virtual geography of Porto Alegre. *Inter-individuals* social relations in each sub-unit of analysis were the basis for studying the socio-cognitive aspects of social learning interactions within the virtual geography of Porto Alegre, in each site of the analysis.

### 5.2.3 Research questions and working hypotheses:

The main research questions which are raised in the case study are the following:

- *How* are advanced information communication technologies being applied within the context of urban governance in the Popular Administration of Porto Alegre?

- *What* are the roles of the social actors involved in the processes of urban governance, with regard to the implementation of advanced information communication technology in the Popular Administration of Porto Alegre?

- *Why* is it that the virtual interactions of social actors, at present, do not seem to mirror the social interactions of participatory practices taking place in real life, in the Popular Administration of Porto Alegre?

These general questions have driven the investigation of social relations as they affect the different groups of social actors in the three units of analysis. As well as this, a set of working hypotheses and sub-hypotheses have been formulated to link the three theoretical dimensions and respective propositions. This set of working hypotheses refers to each unit of analysis (P1, P2 and P3) and apply to group social relations, in the corresponding theoretical dimension. The set of sub-hypotheses is related to each sub-unit of the analysis (SU1, SU2 and SU3) and is concerned with inter-individual social relations.

**Working hypotheses**

It was hoped that the working hypotheses would link up the analytical categories with each unit of analysis, which are related to the theoretical dimensions. They were designed to explain the different levels of social interaction among the groups of social actors involved in each unit of analysis and connected to general models of social interaction within virtual environments. However, it was not expected that the group interactions within each process would fit these models exactly. The processes were only expected to display some of the features depicted by the models.

The three working hypotheses that are related to each unit of analysis are as follows:

- Up to now, the **P1** social actors have been the managers of digital information and the main group of producers of municipal virtual environments, that reproduced the dominant cultural codes of the technological elites.

- Up to the now, the **P2** social actors have been the main producers of digital information that reproduced the traditional modes of rational urban planning and the cultural codes of the technical elites, and at the same time, they have comprised active groups of consumers of cyberspatial technologies.

- Up to now, the **P3** social actors have comprised passive groups of consumers of cyberspatial information, with very little or no interaction whatsoever within the municipal virtual environments.

The three main working hypotheses have bred a set of sub-hypotheses linked to the sub-units of analysis that have governed the investigation of the inter-individual social relations, in accordance with the three categories of social actors involved in each process. They were organised around the main analytical concepts derived from the three theoretical dimensions that comprise the field of intersection between the following disciplines - urban space & IT; urban planning & IT; and socio-cognition & IT, and conforming to our multidisciplinary framework. These interdisciplinary fields make up two spheres of analytical dimensions. They embrace - *informational space* and *informational social learning in urban planning.*

The investigation of this set of sub-hypotheses sought to find answers to the *how* and *what* questions, on the level of the interaction of the social actors within the municipal virtual environment. At the same time, they were expected to explain *why* participatory practices do not seem to have been incorporated in the social construction of the institutional virtual environment of Porto Alegre up to now.

The two sets of sub-hypotheses, which have a bearing on the analytical dimensions, are as follows:

**Sub-hypotheses related to the informational space dimension**

The informational space dimension focuses on the analysis of the characteristics of this new space and how social actors interact with this New World. Two levels of institutional digital environments have been considered:

- the virtual environments concerning each subunit of analysis
- the municipal virtual environment as a whole.

*Virtual geography*[4] is the concept that describes the characteristics of this new space, by taking into account the interrelation between virtual and real spaces. This approach provides an understanding of the space inside computers and the ways in which this space is changing material places and social relations outside computers. This concept draws on a typology that distinguishes between three kinds of place/spaces:

- *cspace*, abstractions of space into (*c*)computer space, inside computers and their networks
- *cyberspace*, the new spaces that emerge from cspace through using computers to communicate
- *cyberplace*, the impact of the infrastructure of cyberspace on the infrastructure of traditional place (Batty, 1997).

The postulated typology is simply a tool to portray the territory of each place-space as it is imagined in terms of geographical abstractions and their characteristics, and varied by the ways in which digital abstractions of this kind might be used within each

[4] See Chapter 1: section 1.4.

process and city agency in Porto Alegre. It is believed that this micro level of analysis might help to define *what* the specific characteristics of real and imagined place/space are and *how* these characteristics are influencing inter-individual and collective social interactions in the context of the Popular Administration. Our focus is on the intersection between *cspace* and *cyberspace*. In view of the fact that the implementation of the infrastructure for cyberspace is still in its earlier stages in Porto Alegre, *cyberplace* is largely constituted through the impact of the infrastructure implanted in the *sites of analysis*.[5]

- **cspace/cyberspace intersection**

In the case of Porto Alegre, the transition from *cspace* into *cyberspace* is a very recent process. While cspace has been developed through the widespread, professional use of personal computers in all city agencies in the last ten years, cyberspace and the ability to use computers to communicate openly with the public is a more recent phenomenon. However, it has spread at a faster rate in the context of Popular Administration, during the last four years.

The construction of these two types of digital spaces involves digital representation. However, a translation from place to space is required before such a digital representation can take place. In line with our interdisciplinary approach, we argue that this *digital translation,* from places into digital spaces, is a prerequisite for building common cultural codes to achieve successful *digital social interactions* either within cspace or cyberspace.

In this case study, *cspace* undertook the translation of Porto Alegre real places into digital representations, through the Popular Administration. Each sub-unit of analysis has a distinct set of digital representations for professional and institutional uses, that forms both its Intranet and a set of digital representations designed to exchange information with the public in general, through the Internet or via Multimedia applications (CD-ROMs). When these digital representations are in place to allow networking communication, they comprise *cyberspace*. Within the limits of this

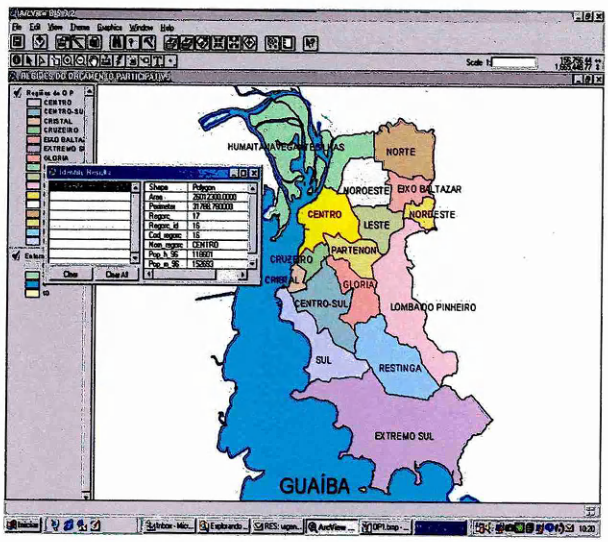
[5] See Chapter 4: sub-section 4.3.2 on the prospect of implementation of the infrastructure to support the Internet II in Porto Alegre.

research strategy, consideration is given to the *networks for public communication.* However, the examination of the set of institutional Intranet of the Popular Administration is outside this investigation.

Account should be taken of the variations between the local conditions of production, access and interaction with *cspace* and *cyberspace* in each sub-unit of analysis. We define the following typology to accomplish this task:

- **SU1 *cspace*** is comprised by the main systems of information processing of the Popular Administration as a whole. It involves the management of the digital representations of all the city agencies run by PROCEMPA for professional and public uses. It also comprises a commercial version of the Digital Map of Porto Alegre - a GIS application,[6] which is available through a CD-ROM version or through PROCEMPA Intranet, (though only for internal professional uses), as show in Figure 5.2.

**Figure 5.2 - Digital Map of Porto Alegre**




Source: PortoGeo -Mapa Digital de Porto Alegre
Prefeitura Municipal de Porto Alegre - PROCEMPA (1996)

- **SU2 *cspace*** comprises the digital spaces constructed by SPM, which involves the digital information related to the old Master Plan (1st PDDUA) and an GIS

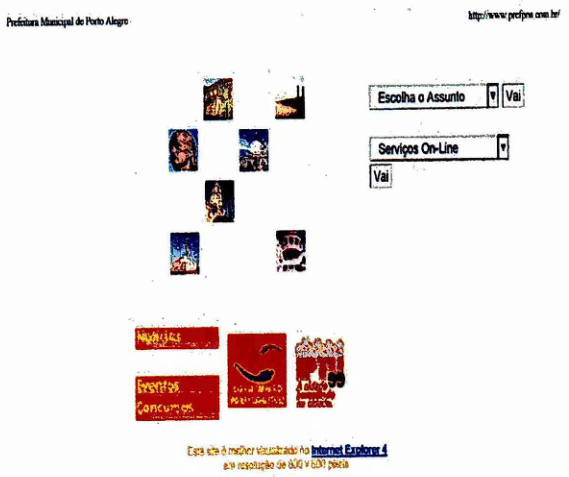
[6] ArcView for Windows 3.1

application for the new Master Plan (2nd PDDUA)[7], available through the SPM Intranet for internal professional use only.

- **SU3 *cspace*** comprises the digital systems designed and managed by PROCEMPA to be used by CRC and CAR for professional purposes, available through the municipal network only.

The new spaces that emerged from these digital spaces constitute the City Hall site on the Internet,[8] that combine these digital spaces to constitute the institutional virtual environment of the Popular Administration, or the ***municipal cyberspace***, which is accessible from, at **http://www.prefpoa.com.br**, (Jan/99). Each *subunit* has its digital representations within the *virtual prefeitura*, as illustrated in the figure below. SPM cyberspace is largely made up of a digital text version of the 2nd Master Plan (available to be downloaded at **http://www.prefpoa.com.br/Planeja/**, Jan/99). The Participatory Budge in cyberspace comprises mainly textual information as well. (**http://www.prefpoa.com.br/op98/**, Jan/99)

**Figure 5.3 - Virtual City Hall of Porto Alegre**




Source: **http://www.prefpoa.com.br** (January 1999)

[7] The GIS applications were not available on the Porto Alegre City Hall site, by the time the field work was carried out.

[8] Porto Alegre City Hall site have been in constant improvement. After the fieldwork took place, the design of the interface has changed and a number of features were incorporated, which increased the number of online public

- **cspace/cyberspace sub-hypothesis**

- Up to the present, ***cspace/cyberspace*** have been expected to be highly descriptive and informative, comprising technical and professional information and offering a small amount of on online public services and general information. Social interactions are expected to be dominated by the local technological elites.

- **cyberplace sub-hypothesis**

- Up to the present, **cyberplaces** within **SU1** and **SU2** have been expected to comprise better material and digital infrastructures than **SU3.**

**Sub-hypotheses related to the dimension of informational social learning in urban planning**

This dimension concerns the analysis of the socio-cognitive characteristics of the interactions between social actors in informational space. It focuses on the particular kind of social interactions that might lead to social learning through participatory planning practices within the institutional virtual environments of Porto Alegre. It means exploring the ways social learning interactions might be taking place through the use of computers and how they might be changing social learning and participatory planning practices outside computers. Two kinds of social learning interactions have been considered:

- the group power relations involved in the social production of the municipal virtual environment
- the inter-individual social relations within the municipal virtual environment.

*Intellectual cooperation* and *social representation*[9] are the analytical concepts that govern the investigation of the *inter-individuals* and *group* socio-cognitive mechanisms which affect social learning through participatory practices, within this new space. This *constructivist* approach leads to an understanding of the socio-cognitive processes, involved in the social production of knowledge. It investigates

services, although the conceptual structure remains the same. See Chapter 4: subsection 4.3.2. or the new Web site at http://www.portoalegre.rs.gov.br

how these processes might be affected by the use of computers in communicating and how these changes might influence social integration through the participatory practices of the Popular Administration.

These concepts are related to the notion that social interaction within informational space might help the process of building new cultural codes. This might create the conditions for a successful *exchange of thoughts* between the social actors, and thus combat the dominant role of the cultural codes of the elites, within the networking logic.

The analytical concept of *intellectual cooperation* is related to the notion that a successful interaction depends on meeting a set of conditions which will enable the partners of the exchange to have the intellectual powers to carry out the same operations as each other. These conditions comprise - *a common scale of values* (language, defined notions, fundamental propositions), *conservation* and *reciprocity* (Piaget, 1997: p.90-91).[10]

The above conditions define a state of equilibrium that depends on the existence of a social situation of *autonomous cooperation*, based on *equality* and *reciprocity* of partners. This represents the ideal model for an exchange of ideas in social learning interactions, between the various social actors involved in participatory practices of urban governance, aimed at social integration.

The concept of *social representation*, on the other hand, entails the notion of dynamic group structures combined with a tri-dimensional representational system made up of - *a set of information, a general attitude* and *a representation field* (Bonardi & Roussiau, 1999: p.17-23).[11] This model of group structure should be used to explain the dynamic of groups involved in participatory processes of decision-making and consensus building.

These models are simplifications of the complex socio-cognitive interactions taking place among the subjects in this case study i.e. in real life conditions. However, they

[9] See Chapter 2: sub-section 2.3.2 and Chapter 3.
[10] See Chapter 3: sub-section 3.2.1.
[11] See Chapter 3: sub-section 3.2.2.

are expected to explain why virtual interactions, whether it be through group dynamics or inter-individual interactions, do not seem to mirror the social interactions of participatory practices taking place in real life, in the Popular Administration of Porto Alegre.

The aim of this approach is to investigate the social and cognitive inter-individual and group relations that might explain the variations in social integration and citizenship participation within **P1, P2** and **P3**. It is also designed to address the question of *what* socio-cognitive mechanisms within Porto Alegre planning practices are required to allow community participation in decision-making and consensus-building, especially within virtual environments. In this way it is possible to focus on the problem of formulating some of the conditions needed for a successful exchange of social experience. This can be viewed as a contributory aspect for the development of intellectual cooperation, within participatory practices in the Popular Administration.

There now follows the sub-hypothesis that links the analytical concepts to the particular conditions that allow social interactions between social actors, in the municipal virtual environment of Porto Alegre.

- **sub-hypothesis related to intellectual cooperation**

- Up to the present, the *municipal virtual environment* has not been expected to contribute to the *exchange of ideas* between the subjects *(politicians, technocrats* and *community leaders),* within the distinct subunits *(SU1, SU2* or *SU3).*

- **sub-hypothesis related to social representation**

- Up to the present, the *municipal virtual environment* has not been expected contribute to build *consensus* between groups of subjects *(politicians, technocrats* and *community leaderships),* within the different subunits *(SU1, SU2* or *SU3).*

## 5.3 Research Design

It is worth pointing out that the data collection procedures were based on the general elements of our theoretical framework, as well as the theoretical guidelines laid down by the hypotheses. This accounts for the fact that the conception of the *informational network society* also applies to peripheral environments on the global network, while allowing for the economic and political constraints imposed by the dialectic of the social spatial polarisation process.[12]

### 5.3.1 Data collection

The data collection involved two different methodological strategies. The first of these, which we call *virtual fieldwork*, relied on the extensive use of the Internet and e-mail to access available digital information and explore the site of the Popular Administration, as well as attempting to establish digital communication with the potential subjects in Porto Alegre (July-Oct/98). This strategy was employed as an exploratory tool, to help design the case study, prior to developing the hands-on fieldwork in Brazil.

The second methodological strategy of data collection consisted of real *life fieldwork*, which took place in Porto Alegre, Brazil, from November 1998 to January 1999. The design of this strategy now follows.

The three general dimensions investigated during the fieldwork are illustrated in Table 5.1, with their respective sets of specific dimensions. The table also shows the instruments used for data collection in each specific dimension.

A general description of Popular Administration (the urban governance context) was included as a third dimension, in addition to the two other dimensions previously planned. This kind of contextual description is expected to be another important source of data that combines all three processes. The previous dimensions for data collection comprised informational space and informational social learning in urban planning, which also includes specific dimensions.

[12] See Chapter1 and Chapter 2.

**Table 5.1 – Dimensions that guided the data collection and sources of data**

| General Dimensions | Specific Dimensions | Sources of Data |
|---|---|---|
| **Urban governance context** | Governmental organisations<br>Civil society organisations | Semi-structured observations + open interviews + documents |
| **Informational space context** | Cspace/ Cyberspace<br>Cyberplace | Structured observations + semi-structured interviews |
| **Informational social learning in urban planning** | Intellectual cooperation<br>Social representation | Structured observations + experimental interviews |

The urban government context, for instance, includes the material, social and political aspects of the *social infrastructure* in each sub-unit of analysis (SU1, SU2 and SU3), as well as related civil society organisations. The informational space context was investigated by analysing the local characteristics of the typology of spaces as defined by the descriptive typology of *cspace*, *cyberspace* and *cyberplace* and their intersections. The dimension related to informational social learning practices in urban planning was investigated through the use of the socio-cognitive models. The socio-cognitive structures were investigated by means of personal interviews with subjects selected from the three processes (P1, P2 and P3), as well as the observation of possible group events. In addition to this, field observations of actual participatory practices were regarded as a possible source of important supplementary information.

The data collection instruments consisted of semi-structured and structured observations, open and semi-structured interviews with individuals (*community leaders*, *technocrats* and/or *politicians*) of the different groups taking part in each of the three processes, as well as key informants from civil society organisations, and analysis of documents. It is described as follows.

### Observations

Semi-structured observations of the different social and political aspects of the three processes were carried out, depending on the availability of public events taking place, while the fieldwork was developed. Meetings and informal conversations were held with politicians, technocrats and community leaders involved in these events. The

observations were carried out in the public places where the events of interest took place. The topics observed were – the identification of minority and majority groups, community leaderships and their social and political links to the three units of analysis (P1, P2 and P3).

Structured observations were also carried out together with the semi-structured personal interviews with the *subjects* from each one of the categories of social actors - *politicians*, *technocrats* and *community leaders*, within each sub-unit of analysis (SU1, SU2 and SU3). The observations were focused in two aspects concerning the contextual conditions. First the evaluation of local digital infrastructure of the *sites* where the interviews were held in each subunit. Second the evaluation of the subject's interaction with the computer and his/her interest in exploring the proposed virtual environments.

Notes were taken, written and tape-recorded by the researcher, both during and after the observation process.

**Interviews**

Open interviews were carried out with key informants from the governmental organisations (Municipal Secretary, administrators, chiefs of Municipal Departments and, technocrats) and from the civil society organisations (academics and community leaderships) in relation to each process (P1, P2 and P3). They were selected on the basis of their experience and expertise, in the development of the three processes within the context of the Popular Administration.

The open interviews were designed to cover the following aspects:

- Opinions and general information of the main public policies arising from the three process, and including: the Participatory Budget; the 2nd Master Plan proposition (PDDUA); the program for implementing both the GIS application for city planning and management; and, the City Hall site on the Internet.
- Evaluation of the development of these policies insofar as they professionally affect the interviewed.

- Personal assessment of the role of advanced information communication technologies, as well as the practical applications within the participatory practices of governance of the Popular Administration.
- Personal assessment of the achievements of the Popular Administration in running the local government of Porto Alegre in the last ten years.

Semi-structured personal interviews were carried out with politicians, technocrats and community leaders, in each sub-unit of analysis. Apart from the interviews, the digital infrastructure in each sub-unit was also tested and analysed. In addition, structured observations were also carried out in these sites to evaluate the interaction between the individual and the computational environment.

Two instruments were employed to control the course of the discussion during the interviews and the way the observations were carried out:

a) Instrument 1 – was an investigation which encouraged the subjects to make a personal evaluation of the performance of the Popular Administration in running the local government in Porto Alegre during the last ten years; and, sought to determine their familiarity with available computational resources. It comprised the main instrument for conducting semi-structured interviews. [13]
b) Instrument 2 – aimed to investigate the interaction between the subject and the available digital environment, as well as the familiarity of the subject with the policies involved in the three main processes. It entailed a semi-structured interview at the site of the analysis, where questions were asked to the interviewees who were interacting with the proposed digital environments. At the same time, structured observations were carried out by the interviewer to record the reactions of the interviewees.[14]

The two instruments were carried out together in the interview sessions, which were divided into two parts. In part one the researcher applied instrument 1 while developing an informal conversation. Afterwards the researcher applied instrument 2, by questioning the subject who was interacting with the digital environment at this point. The sequence of questions asked by the interviewer was adjusted to the

[13] See Annex 1 for a summary of the interview schedule of instrument 1.
[14] See Annex 2 for a summary of the interview schedule of instrument 2.

reactions of the subject within each digital environment. Two computational environments were set up in this second part and they encompassed the intersection between cspace/cyberspace, defined within the sub-units of the analysis – the Digital Map of Porto Alegre and the City Hall site of Porto Alegre, on the Internet.

The dialogue between interviewer and interviewee was tape-recorded and observation notes taken down both during and after the interview. The recorded tapes were transcribed into digital form for use as root data in a later analysis.

**Documentary analysis**

The documentary analysis included the investigation of digital and analogical material. Most of the digital work was done during the virtual fieldwork and later complemented during the period of hands-on fieldwork in Porto Alegre. Appropriate Internet sites and computational applications were also used in the documentary analysis.

Official Municipal Government publications related to these processes were examined to find out more about their characteristics (public organisations involved, available digital infrastructure, institutional instruments for citizen participation).

While undertaking the fieldwork, the researcher had to keep an open mind in an attempt to capture other aspects of the actual processes that had not been covered by the research design. This impartiality allowed for the inclusion of aspects not anticipated at the time the hypotheses were formulated.

### 5.3.2 Selection of subjects for the case study

One of the main goals of this case study strategy was to draw analytical conclusions from the evidence gathered in the data collection. No attempt was made to generalise the findings for all other similar cases, as it would have had to be a representative study to do this. This means that the subjects selected in each category - politicians, technocrats and community leaders, were not considered as representative samples of each process in the units of analysis.

However, it was considered important to employ a set of criteria for the selection of the groups and individuals. The selection process was aimed at maximising certain differences between the target groups, while minimising others, in order to reach an understanding of the contribution of each process for citizen participation within the context of urban policies in the Popular Administration. The reason for the selection criteria was to ensure that differences in socio-cognitive performances of the subjects, within each process, would be attributed to differences in the specific characteristics of the processes, rather than personal ideological constraints.

The three processes showed contrasting levels of citizenship participation while being all part of the same general policy of Popular Administration. Hence, when deciding on the three categories of subjects, it seemed reasonable to suppose that:

a) subjects from any of these categories could take part in any of the three processes, and would make up different types of interest groups, that sometimes overlapped
b) the Participatory Budget process would be more likely to comprise the largest number of individuals from the community leadership category, since this is the process which was set in motion to manage citizen participation, in the context of the Popular Administration.

It was thus considered an important criterion to select subjects from any of these categories who could take part in more than one process. Furthermore, the selection of subjects who belonged to the community leadership category, would be a basic condition for investigating the role of citizen participation within the processes.

The three processes were also expected to display contrasting levels of digital infrastructure and computational skills among the subjects involved. Despite being all part of the same general information technology policy of the Popular Administration, it seemed also reasonable to suppose that:

a) individuals from any of the previous categories, taking part in any one of the processes, would have different levels of computational skills
b) the Information Management process would be more likely to encompass the largest number of computer literate and skilled individuals in the technocrats category, as it was the process which was formed to manage information technology in the context of the Popular Administration.

As a result, computer literacy and computational skills were also the criteria adopted, either positively or negatively, in the selection of individuals from the category of technocrats.

By following the fixed parameters, our first approach was to make a choice of computer literate subjects from all categories, including computer literate community leaderships involved in any process. It was decided to make a first attempt by using digital communication (e-mail) to identify these subjects before carrying out the fieldwork, during the period of virtual fieldwork. The return rate was not significant, as only politicians and technocrats had open access to digital communication, at that time. Nonetheless, there were e-mail addresses for some community leaderships who were involved in the Participatory Budget available online at the City Hall site, at that time (July-Oct/98).

### Subjects

After the first attempt to select the subjects in advance through the e-mail failed, we decided to leave the selection process open and only carry out tests once the fieldwork had got underway in Porto Alegre and personal, face to face, contacts established. Subsequently, a design for the target population of 20 subjects was prepared in accordance with the parameters laid down previously, comprising equivalent numbers for each category by site of analysis.

**Table 5.2 – Proposed distribution of target subjects by category and site of analysis**

| Site of Analysis/ Subject Category | Politician | Technician | Community Leadership |
|---|---|---|---|
| PROCEMPA | 01 | 02 | 02 |
| SPM | 01 | 02 | 02 |
| CRC/CAR | 02 | 04 | 04 |

The main pitfall in the selection of the subjects concerned the actual state of the information process within the Popular Administration. Moreover, when dealing with the inter-individual socio-cognitive micro-sphere, it would also need to take into account the willingness of the subject to participate in the research.

Table 5.2 illustrates the distribution of the 20 subjects in accordance with the main categories and the site of the analysis.

At the beginning of the fieldwork, a brief test of the selection process and the proposed instruments of data collection was carried out. The modifications derived from this evaluation are given next together with the final selection of the subjects.

## 5.4 Methodological Adjustments to Fieldwork

At the time when the hands-on fieldwork got underway in Porto Alegre in November 1998, the Popular Administration was going through a period of significant political changes. The PT's candidate for Governor, Olivio Dutra (former Mayor of Porto Alegre) had just won the state election in Rio Grande do Sul. There was a feeling of astonishment, excitement and joy in every department of the local government. It was the first victory the party had had in the democratic history of the State government; although the PT had been running Porto Alegre for over three consecutive political periods since 1989.

As expected, this researcher initially experienced some difficulty in working out a timetable for face-to-face contact with key informants in the municipal sphere, as most of them were political leaders and played important roles in both the local government and the party machinery itself. On the other hand, it was a fruitful period as regards the local political agenda. In view of this, it was decided it would be a good idea to take advantage of the promising political situation by carrying out unstructured observations of the main socio-political events being held at that time in Porto Alegre.

The results of these general observations made it clear that there had been considerable public admiration of the administrative and management skills displayed by the PT in the ten years it had been running the local government of Porto Alegre. This was

mainly on account of the Participatory Budgetary Strategy, which had been at the top of the PT's political agenda in the campaign for its candidate to become State Governor. From the standpoint of the party, the political victory was a reaffirmation of this public approval of the Popular Administration's performance and the socio-economic policies it had implemented in Porto Alegre.

There was a strong reaction against these policies on the part of the conservative and liberal political forces that had previously been in power and were now about to lose their privileges and become the political opposition. As the conservatives controlled the local media, they used their strength to openly criticise some areas where they considered the Popular Administration had been less successful. One such area, which we particularly want to focus on, was urban planning policy. The main argument of the Conservatives was that, while the Popular Administration had been successful in dealing with public needs at a local community level, it had been unable to handle large scale problems affecting the development of the city as a whole (such as traffic congestion and urban regeneration projects). They claimed that the reason for this was that the Popular Administration had been unable to formulate any clear comprehensive planning policy.

Ironically, this was also the time when the new Master Plan (2nd PDDUA) drawn up by the Popular Administration, was finally due for approval by the Municipal Council. In view of the fact that the PT had not obtained a majority of votes in the Council, this meant that political alliances (with opposition parties) were needed to ensure that the plan could be approved. As explained in Chapter 4, the process of discussing and preparing the PDDUA had already taken six years and involved endless discussions within all sections of the civil society. Nevertheless the general tenor of the spatial model which incorporated extensive building regulations in the plan, seemed to be more concerned with the landed property and construction industry sectors than the issue of popular participation in urban planning. What is more, the final approval by the Municipal Council did not appear to capture the attention of the public at large, let alone the community leaders from the popular movement. At the same time, the civil construction and property market sectors were openly campaigning for the new plan to be approved by the Municipal Council. This suggested that, contrary to the claims of the Conservatives, the new master plan incorporated a global planning strategy that

was indeed the result of a consensual agreement among the different interest groups concerning the development of the *regular city*.

It was also clear from the comments on political events and information made by the local media, that there was an internal power struggle going on within the Popular Administration itself. This internal dispute was exacerbated by the need for the PT to form a new cabinet of Ministers in the recently elected State Government and fill new positions of power. A further aim of the new master plan was to set up a new strategy for co-ordinating and integrating every sphere of municipal planning activity – urban, environmental, economic, social and informational - into a unified management system. In other words, putting this kind of planning strategy into practice would also require structural changes in the administrative organisation of the local government.

The bureaucratic structure had remained basically the same during these years of PT administration in Porto Alegre. Apart from splitting up urban planning functions,[15] and introducing a program for decentralising public services,[16] no major administrative reforms were carried out. The technocratic model remained in place and civil servants continued to be trapped in a situation where there was a delicate balance between left wing, conservative and liberal political forces. As well as this, there were disputes among the PT members, who occupied positions as the heads of municipal bodies, and administrative officials, which spread through different departments.

In view of this, internal political disputes could be expected to arise before approval of the new master plan was obtained or changes introduced by the new political forces of the State Government were implemented. The particular political disputes which we are concerned with, relate to SPM, PROCEMPA and the CRC, as these bodies make up the analytical subunits of our empirical investigation.

Finally, this was also the time when the SMAM - the Municipal Secretariat of Environment was launching the *Environmental Atlas of Porto Alegre* to promote a municipal program for integrating policies for the protection of the environment. The

[15] See Chapter 4: sub-section 4.3.1 on the division between GAPLAN and SPM (participatory budgeting strategy and physical urban planning).
[16] The programme for administrative decentralisation has created seven regional administrative structures, the CARs, subordinated to the CRC (subordinated to the GAPLAN).

Atlas is a comprehensive scientific project carried out by means of an extensive partnership[17] program. It was published as a hard back for academic and educational purposes and as a multimedia application in a CD-ROM for the general public. This work and its digital version were persuasive factors in determining that SMAM should also take part in the empirical investigation. As a result, SMAM was included as an additional *site of analysis* linked to *subunit SU2,*[18] along with SPM.

### 5.4.1 Final selection of subjects

In the light of these internal political changes, the strategy adopted for the final selection of subjects was first to contact the heads of each analytical subunit (SU1, SU2 and SU3), and then attempt to set out a timetable for the interviews. This would guarantee the first stage of the fieldwork and, at the same time, make sure that the political support to carry out the second stage of the empirical experiment was forthcoming, even if these political leaders were to change their administrative positions during the period of the fieldwork.

The final selection of subjects was strategically targeted at two types of subjects - key informants and subjects from the municipal organisations, as both of these provided a link with the community leaders who were taking part in the participatory practices. In addition, the key informants played a crucial role in helping to identify the subjects from within the municipal organisations that could contribute to this research work and were willing to take part in the experiment.

#### Key informants

The group of key informants comprised nine subjects; however, as it had been decided that they would not take part in the experimental investigation, their computation skills were not a pre-condition of their inclusion. The criteria for their selection were their experience and expertise in relation to the processes taking place within each unit of analysis (P1, P2 and P3) in the context of the Popular Administration. Their suitability depended on two types of links which they might have with the local government –

[17] This partnership included, among others, institutions such as the Federal University of Rio Grande do Sul (UFRGS) and the National Institute of Spatial Research (INPE).

either they were subjects from within the municipal administration, or else subjects from civil society organisations.

Despite the fact that this was a period of internal political change, the members of the Popular Administration were very supportive to this researcher in her work. An initial timetable for interviews with key political informants was soon drawn up, although it often had to be adjusted to fit in with changes in the schedules of politicians. Five subjects were selected as key informants[19] and agreed to be interviewed in their work environments:

(a) Po1 - the President of Municipal Data Processing Company (PROCEMPA)
(b) Po2 - the Municipal Secretary of Environment (SMAM)
(c) Po3 - the Municipal Secretary of Planning (SPM)
(d) Po4 - the Co-ordinator of Community Relations Coordination (CRC)[20]
(e) Po5 - the Mayor[21]

In addition, a group of four subjects from social organisations were chosen because they had been involved with the three processes (P1, P2 and P3). A timetable for interviews in the working places of the subjects was agreed on. This group consisted of four key informants[22], two academics from the Federal University of Rio Grande do Sul (UFRGS) and, two community leaders from the Vila Cruzeiro do Sul community association (AMOVICS):

(a) Cs1 - the Co-ordinator of the Graduate Programme of Urban and Regional Planning (PROPUR/UFRGS)
(b) Cs2 - the Co-ordinator of the Laboratory of Cognitive Studies (LEC/UFRGS)
(c) Cs3 - the President of the AMOVICS
(d) Cs4 - the Vice-president of the financial advisory board of the AMOVICS

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[18] See Fig. 5.1.
[19] From now on the politicians' key informants will be identified by the short forms: Po1, Po2, Po3, Po4 and Po5.
[20] CRC is subordinated to the GAPLAN. Due to the political context the co-ordinator of GAPLAN was not available and was replaced by the co-ordinator of CRC, who was the main political support for the development of the second stage of the fieldwork.
[21] As a result of the post-electoral period, the current Mayor was not available. However, an interview was later held with the previous PT Mayor of Porto Alegre, on account of his presence at a seminar about Brazilian politics in London (February 1999).
[22] From now on the key informants from civil society will be identified by the short forms: Sc1, Sc2, Sc3 and Sc4.

Table 5.3 illustrates the final distribution of the nine key informants as regards the unit of analysis that they are related to, together with their group categories.

**Table 5.3 – Final distribution of key informants by category group and unit of analysis**

| Unit of Analysis/ Subject Category | Politician | Academic | Community leader |
|---|---|---|---|
| P1 | Po1 | Cs2 | Cs3* |
| P2 | Po2, Po3 | Cs1 | - |
| P3 | Po4 | - | Cs4 |
| All | Po5 | - | - |

(*) Cs3 was also related to P3, however our focus of interest was her connection with P1.

### Subjects from municipal and community organisations

The group of subjects from the municipal organisations follows the general parameters laid down in the research design, regarding the three categories - *politicians*, *technocrats* and *community leaders*, who were expected to take part in the experimental investigation. However, the political context imposed a major constraint as it was hard to have politicians available long enough to undertake the task. We thus decided to regard politicians as only key informants and instead sought for administrators who played a dual role – carrying out technocratic or administrative functions as civil servants and being politically engaged in the PT project for the Popular Administration. The same criteria was used for recruiting community leaders, as we realised that there was also an overlap between community leaders engaged in the participatory budgeting strategy and municipal employees working within the CRC. Hence, the three previous categories of subjects were separated into four new divisions: *technocrat/political administrator,*[23] *technocrat*, *political administrator/ community leader*[24] and *community leader*.

[23] Usually these are commissioned administrators, especially employed by the Popular Administration to perform civic services during a certain period of time. They are not part of the permanent municipal civil servant staff.

[24] This category mainly comprises subjects that came from the grassroot community movements and are now working inside the Popular Administration. There is a crossing over in their activities as they also encompass the organisation of the local communities; nevertheless these political administrators are not expected to be nominated as community representatives within the Participatory Budget Council (COP).

It should be pointed out that it was of crucial importance to persuade the politicians to allow municipal employees to take part in our empirical experiment, as well as obtaining the willingness of the employees to make a contribution to this academic task. The main criteria for the selection of municipal employees were their experience and expertise in relation to the processes taking place within each subunit of analysis, although their computational skills were taken into consideration.

The total number of subjects included in each category and their respective short term identities within this empirical analysis is as follows:

(a) four *technocrat/ political administrators* - Tp1, Tp2, Tp3 and Tp4
(b) six *technocrats* - Te1, Te2, Te3, Te4, Te5 and Te6
(c) six *political administrator/community leaders* - Tc1, Tc2, Tc3, Tc4, Tc5 and Tc6
(d) five *community leaders* - Co1, Co2, Co3, Co4 and Co5

**Table 5.4 – Final distribution of subjects by category group and site of analysis**

| Subject Category / Site of Analysis | Technocrat/ P. Adm. | Technocrat | P. Adm./ Community leader | Community leader |
|---|---|---|---|---|
| PROCEMPA | - | Te1 | - | - |
| SPM | Tp1,Tp2,Tp3 | Te2,Te3, Te4 | - | - |
| SMAM | Tp4 | Te5 | - | - |
| CRC | - | - | Tc1,Tc2 | - |
| CAR | - | Te6 | Tc3,Tc4,Tc5,Tc6 | Co1,Co2,Co3,Co4,Co5 |

Table 5.4 shows the summary of the final group of twenty-one subjects and their distribution by site of analysis and category group, while taking into account the extent to which the different methodological categories overlap.

It should be emphasised that the community leaders are not employees of the municipal administration. These leaders are community representatives in the

Participatory Budget Council (COP) and their work as community councillors is voluntary.[25] The procedure of selecting community leaders was first discussed with political leaders from the Co-ordination of the Participatory Budget (CRC). I decided that my best approach as a researcher was to attend one of the COP meetings and personally invite the community leaders to participate in the research, after giving a short explanation of the academic purposes of the experiment.

This researcher attended a *COP* ordinary meeting when a general invitation was extended to the whole body of councillors (32 nominated councillors and 32 substitutes). Later, at the end of the meeting, individual contacts were made and a provisional timetable of interviews was drawn up with those leaders willing to participate in the experiment.[26] It was decided, in accordance with *CRC*, that the interviews would take place in the Regional Administrative Centres (*CARs*) of the respective Budget Region where the community leaders come from.

**Table 5.5 – CARs by geographical budget region, population and Internet access**

| CAR Name | Administrative Regions* | Inhabitants | Internet Access |
|---|---|---|---|
| **CAR-Norte/Eixo Baltazar** | Norte, Eixo Baltazar | 174,671 | yes |
| **CAR-Leste/Nordeste** | Leste, Nordeste | 134,712 | no |
| **CAR-Partenon** | Partenon, Lomba do Pinheiro | 162,495 | yes |
| **CAR-Gloria/Cruzeiro/ Cristal** | Gloria, Cruzeiro, Cristal | 132,445 | yes |
| **CAR-Restinga/Extremo Sul** | Restinga, Extremo Sul | 69,904 | yes |
| **CAR-Noroeste/Humaita** | Ilhas-Humaita-Navegantes Noroeste | 175,773 | no |
| **CAR-Centro Sul **** | Centro Sul, Sul | 164,234 | no |

**Source:** Prefeitura Municipal de Porto Alegre, Coordenação de Decentralização Administrativa - CRC-GP (November 1998)
(*) The Centro Region is not included.
(**) CAR in process of implementation.

[25] See Chapter 4: sub-section 4.3.1.
[26] At first, eight COP's community leaders were willing to take part in the experiment, however this number had dropped to five by the time the interviews were carried out. The support of the CARs' co-ordinators was fundamental to get the experiments done.

At that time six *CAR*s had already been implemented in Porto Alegre and another one was in the process of being implemented as part of the administrative decentralisation programme. The goal of this programme is to integrate the Popular Administration public services with the grassroots community work being developed within the geographical Budget Regions (16 at that time). Each centre covers a number of regions, which vary in accordance with the political and geographical criteria that governed their implementation. There is no *CAR* administrative structure especially designed for the *Centro* region, as this is the geographical region where the City Hall and the headquarters of the *CRC* are located. Table 5.5 shows the seven *CAR*s in relation to the regions, the total population, and the availability of Internet connection.

In the course of our fieldwork, it became apparent that computer literacy was not a relevant criterion for the selection of community leaders. It was clear from the very first meeting that their computational skills were minimal or non-existent, although they were very curious about the research work. Our first priority was to get at least one community representative from each geographical region linked to each CAR structure, even though only four regional administrative centres had digital infrastructure and Internet connection available at that time. Drawing up a timetable for interviews with the community leaders proved to be a time-consuming task, particularly as we sometimes had to ask them to meet us outside their regions or community centres.

We decided to concentrate our efforts by working through the four CARs that already had digital infrastructure, as this enabled us to have subjects from both sides of the participatory process - community leaders and community co-ordinators (*CROP*)[27] from within the administration, interviewed in the same digital environment. The final arrangements, however, also had to take into account the extent of the willingness of the subjects to participate in the experiment and the political support of the CARs co-ordinators, as well as the availability of local Internet access. As a result, the interviews centred on the four CARs with digital infrastructure, but also included subjects from different regions who agreed to take part in the experiment. This meant

[27] In each CAR there is a local administrative structure, which includes among others municipal employees the *community organisers* (or CROP - Regional Co-ordinator of the Participatory Budget). There is one CROP responsible for each budget region who works in the region as promoter of community organisation and mediates the work between the central administration and the local communities, through the CAR.

that the subjects from the *Leste* and *Nordeste* (East and North-East regions) were interviewed in the CAR-Partenon.[28] The only exception was the community representative from the *Ilhas* (Islands) region, who was interviewed at the community association in the Pintada island (Fishermen Colony of Pintada Island).[29]

**Table 5.6 – Final distribution of subjects by category in each CAR (site of analysis)**

| Subject Category/ Site of Analysis Region | P. Adm./ Community leader | Community leader |
|---|---|---|
| CAR-Norte/ Eixo Baltazar | Tc5 | - |
| CAR-Leste/Nordeste* | Tc3 | Co4 |
| CAR- Partenon | Tc4 | Co2 |
| CAR-Gloria/Cruzeiro/Cristal | - | Co3 |
| CAR-Restinga/Extremo Sul | Tc6 | Co5 |
| CAR-Noroeste/Humaita** | - | Co1 |

(*) CAR without Internet connection, subjects interviewed at CAR-Partenon.
(**) CAR without Internet connection, subject interviewed at Pintada Colony of Island Fishermen.

Table 5.6 gives a summary of the final distribution of the nine subjects related to the process of community participation by category variation and site of analysis (CAR/budget region).

Finally, it should be pointed out that some fieldwork adjustments were made to ensure control over the experimental conditions, and to account for variations in the digital facilities available in the different sites of analysis, where the individual interviews were carried out. Having access to the Internet was a pre-condition in defining the site of analysis for both categories, political administrators and community leaders. In order to save time and to guarantee the use of the PortoGeo GIS application, which would require the 3.11Windows version to run, the application was installed in our private laptop so it could be used whenever necessary during the interviews.

[28] See Annex 7 and 9.
[29] *Pintada* Colony of Island Fishermen used to be a CAR headquarter, that was incorporated into a new group of regions linked to *CAR-Noreste/Humaita*. They had no telecommunications infrastructure at that time.

# Chapter 6

## The Case Study: Part One - Contextual Dimensions

### 6.1 Introduction

The purpose of this chapter is to discuss the findings of the empirical investigation and the answers they provide to our research questions. The hands-on fieldwork was carried out in accordance with the case study methodology, as described in Chapter 5, and was undertaken in two phases. The first part focused on the investigation of the contextual dimensions - *urban governance* and *informational space*.[1] The second part concentrated on the analytical dimension and is described in Chapter 7.

The chapter is divided into four sections and starts off with an examination of the data collected during the first part of the fieldwork, which is to do with urban governance. The focus is on the analysis of the data from the key subjects from governmental and civil society organisations. This is followed by an examination of the informational space context and an attempt is made to investigate social power relations within the three units of analysis (P1, P2 and P3), in the context of the Popular Administration of Porto Alegre. The chapter ends with a summary of the findings.

The contextual dimensions entailed an analysis of the empirical evidence that emerged from the areas of urban governance and informational space. This evidence was collected from three different sources during the hand-on fieldwork period; it included documents, semi-structured observations and interviews which conformed to the guidelines laid down in the research methodology design.

The methodological strategy of our fieldwork was to carry out open interviews with key informants from the political sphere who were our main source of empirical evidence, given the contextual conditions related to the three *units of analysis - P1, P2* and *P3*. These subjects were also the link to the key informants from the civil society

[1] These contextual dimensions were explored earlier, while this researcher was still in London during the virtual fieldwork period, and utilising the Internet to access and collect the available digital data, as well as to analyse the institutional site of Porto Alegre. The results of this phase were partially discussed and described in Chapters 4 and 5, as they constituted the background for the design of the research strategy. The first part of hands-on fieldwork was carried out to complement this information before the second part could be developed.

sphere as well as relevant public events that were taking place in Porto Alegre at the time the fieldwork was being undertaken. Two public events were selected for semi-structured observations to complement the empirical evidence for the analysis of the contextual dimensions. These public events comprised: (a) the 1st Forum of Information Technology for Education, at Restinga region and, (b) the Public Hearing about the Carrefur's project for the Assis Brasil region.

Following this, there is a discussion of the findings in each contextual dimension, which take into account the opinions of the key informants from within the municipal organisation in contrast with the views of the key informants from the civil society organisations, our observations of the public events and the documentary analysis. It is important to point out that the three processes that comprise the units of analysis overlap in many ways. Each key informant, from both categories, contributed to a different degree in setting the contextual background for the development of the informational space, in relation to each unit of analysis.

### 6.2 Urban Governance Dimension

The interviews with the key informants from the political sphere were the main source of evidence on the basis of which an analysis of the contextual conditions for group social relations could be carried out. This analysis focus on the conditions required to support the three processes (P1, P2 and P3) that are involved in the creation of informational space by the Popular Administration. The subjects (Po1, Po2, Po3 and Po4) were not professional politicians, even though they occupied political positions within the municipal administration. In fact, all of them come from a technical/academic professional background (in engineering, architecture and sociology) as well as having strong links with the PT political structure, while Po2 and Po4 had both had previous experience in the organisation of grassroots communities. The exception was Po5 who, although also coming from a technical/academic professional background (law), had had previous experience as a professional politician in the national legislative assembly.

The interviews with the group of subjects from the civil society sphere provided an array of facts which either contradicted or strengthened the evidence which originated

from the sphere of politics and administration. This fact has a bearing on the results of the public policies that support the use of IT, within the urban government context, as witnessed by the experience of the subjects.

### 6.2.1 Key informants from municipal government organisations

An exam of the contents of the open interviews, from the key informants of the political arena, enables us to identify a general transitional period in the institutional use of IT that parallel changes within the local government sphere of the Popular Administration. The variations of the transitional stage in each process depend on three sorts of conditioning:

- material infrastructure
- social infrastructure
- political priorities.

#### Material infrastructure

The material infrastructure is identified by all the subjects as being the most common form of constraint. It includes two levels of material support for the development of informational space: a global level that consists of a telecommunication infrastructure for the city as a whole and, a local level that comprises the physical digital infrastructure within municipal organisations. The latter is related to the general municipal policy for Information Technology investments (hardware and software), while the former is connected with the national telecommunications policy.[2]

The relationship between the global and local levels of investments in digital communication infrastructure raises the question of the limits of municipal autonomy and the interrelation between national and local IT policies. This is due to the tremendous gaps that can be found in the telecommunication infrastructure of the country as a whole and the recent government policy to privatise public services through market-driven investments in the field. The following statement made by *Pol* describes what the administrators of the municipal information management process think about this:

[2] See Chapter 4: sub-section 4.2.1.

*(...) - Today we have got a network that manage more than 3,500 intelligent machines within the Municipality and more than 84 different local networks that make up the municipal information infrastructure of Porto Alegre. So the network management problems that we are facing today are related to an insufficient bandwidth, which also comes from having Internet access in all these places. These problems can only be solved by having an adequate telecommunications infrastructure. That's why we have developed this project; it involves wiring all the public municipal buildings, as well as the main centres of research and innovation, hospitals, etc, which have been provided with an integrated optical fibre backbone. This comprises the project that is called Tele Porto Alegre. Owing to the amount of investment needed for this infrastructure project, we have to rely on both the national telecommunications policy and international financing programmes associated with major road works in the city.*[3]

The municipal organisations, which are the information producers and users, are directly involved in solving the local problems which are caused by the lack of digital infrastructure, although they are aware of the constraints of the national telecommunications policy. These factors determine the nature of their priorities, since they have to cater for the daily needs of the work-place and supply a regular flow of information. As a result, the administrators of each municipal organisation have started to find their own solutions by ingeniously making use of the insufficient material infrastructure available and relying on a great deal of creativity. The *Po2* interview illustrates this type of creative strategy, when he describes how SMAM worked out the production of the *Environmental Atlas of Porto Alegre*, including the CD-ROM multimedia version:

*(...) - Today there is a tremendous imbalance in the distribution of material support for the use of information technology among the municipal secretariats, which is mostly due to the physical characteristics of the digital network, including both the quantity and the quality of the available computer equipment. This meant we had to put together all the available resources we could find to produce the Atlas, and work in cooperation with other institutions and find any sponsor we could.*
*As a result of a huge effort, we managed to devise new means for building a digital system of environment management that we didn't have before. So today we have the technological know how but we don't have any computers. We believe that the tools that we've developed will allow us to change the way we work by using an information system for controlling the natural city environment that is efficient, comprehensive and fast.*[4]

[3] Translated from the open interview with Po1 in 18/11/1998, PROCEMPA, Brazil.
[4] Translated from the open interview with Po2 in 12/11/1998, SMAM, Brazil.

According to *Po3,* SPM was considered as being one of the best equipped secretariats, with computers in most sectors. This digital infrastructure was more a question quantity rather than quality as far as equipment was concerned. As a result, the supply and control of spatial information, which can be considered as the raw material of the urban planning process, did not run smoothly within the Secretariat. The development of the municipal GIS application to support the design of the new master plan faced a number of problems. This was despite the fact that SPM is the co-ordinator of an inter-secretariat Executive Committee that was created in 1995 to implement a *Geographical Information System for Porto Alegre*, and was based on GIS technology. The new master plan embodied the idea of a planning system that relied extensively on the use of IT technology for data management and information flow between the municipal organisations, as well as for public participation.[5] However, the adequate physical infrastructure (hardware and software) for the efficient use of GIS technology was still waiting for external financing.

With regard to the participatory budget process, the evaluation of the administrators, according to *Po4*, was that there was a lack of basic material infrastructure to support the *Program of Administrative Decentralisation,* within which the digital infrastructure, especially Internet access, was not a priority at that time. He recognises that, if a larger scale strategy of public participation for the new master plan is going to be put forward, better connections and flows of information between the different departments of the central administration and the regional centres will be required.

*Po4* standpoint does not coincide with the IT policy being implemented in the regional centres at that time. *Po1* maintains that they are working to give citizens local access to public information through the CARs. This consists of implementing digital infrastructure in each of the seven CARs and encompasses Internet access, as well as e-mail facilities, to improve the connection with the different units of the central administration. According to *Po1*, this is part of a wider project that envisages the CARs as becoming *'web clients'* and favours the future implementation of *Intranet* structures which are specifically designed to handle information about the Participatory Budget. This will be accessed by the local communities of the different administrative regions.

[5] See Chapter 4: sub-section 4.3.1.

In considering the allocation of municipal funds for digital infrastructure, it should be noted that there are institutional differences between the governmental organisations that co-ordinate each process. PROCEMPA, which coordinates the municipal information management, is a mixed company. The company is financially independent from the central administration, while the rest of the municipal secretariats are hampered by their institutional links within the central administration and depend on the municipal revenues or possible credit lines for the financing of digital infrastructure.

This double role of the company allows it to draw up a municipal IT policy that combines public and commercial objectives. The company policy towards the costs of digital infrastructure takes into account the commercial aspects of cyberspace, and particularly lays emphasis on the development of electronic commerce, as illustrated by *Po1* in the following statement:

*(...) - International trade today has a local base, within which e-commerce plays an important part. The city of Porto Alegre is investing in this with the aim of stimulating different forms of e-commerce and the exchange of electronic information. This is because we are aware that the costs of the IT infrastructure are in inverse proportion to the number of contented clients who live in a given place. Our goal is to help to increase the number of Web users as quickly as possible with the scanty resources currently available.*[6]

The analysis of the document that contains the *Municipal Pluriannual Plan* for the period 1988-2001, demonstrates that there is a wide consensus about the institutional use of IT for administrative purposes and a need to expand and upgrade the physical network that supports the municipal administration. The objectives of the Pluriannual Plan confirm that a real attempt is being made to modernise the administrative structure so that it can cope with the effects of further technological changes. This also applies to the different ways that might be opened up for the institutional use of the Internet. There are also signs of a general strategy to deal with discrepancies in the distribution of the digital infrastructure within the municipal institutional network.

The general belief among the interviewees is that, the lack of material infrastructure is due to special circumstances and that the Popular Administration has already worked

[6] Op. cit. (3)

out a number of projects to access the available credit lines. This standpoint seems to be confirmed by the striking presence of projects for implementing information systems within the different organisations, in the Pluriannual Plan adopted by the municipal government in its present term of office.

According to *Po1*, the increased use of personal computers by the municipal administration in the last decade has brought about a change in the old technocratic culture that used to regard IT as a tool which could only be used by computer experts. Now the introduction of Internet technology within the administrative sphere is expected to introduce profound changes in everyday bureaucratic practices:

*(...) - Today, after ten years of Administration, we have reached the stage when it is necessary to redefine working practices inside the Town Hall. In our judgement these traditional practices are slow, old-fashioned and cumbersome. So they need to be redrawn, but redrawn with the help of the new technology. This includes a wide spectrum from the informational management of the new Master Plan, which makes use of all the relevant GIS tools, to the management of online public services in the Web. Today we are already rendering a series of services on the Web but they are still very close to old-fashioned bureaucratic ways of doing things; however, as the processes become increasingly electronic, this interaction should become much stronger.*[7]

The idea of changing *'the ways that we do things'* within the municipal administration is a major challenge that has been present since the very beginning of the Popular Administration government (as discussed earlier in Chapter 4). What seems to be new in the proposition expressed in *Po1*'s statement, is the prospect of using information technology not only to change the material basis of the bureaucratic administrative structure, but also the contents and the power relations between the technocracy groups. There is a need to take into account how aware these subjects are of the social conditioning required for this kind of task, as well as the differences in their strategies, which are linked to the different political priorities that each process entails (*P1*, *P2* and *P3*).

**Social infrastructure**

[7] Op. cit. (3)

The social infrastructure poses a major challenge which was identified in the interviews with the municipal administrators; it consists both in making modifications to institutional procedures and traditional patterns of working, and in improving the expertise of staff members in every department. This has involved a radical change in the area of information management within the administrative structure which was put into effect in the last years of the Popular Administration, in order to incorporate the latest developments of information communication technology.

PROCEMPA is the municipal company which is officially responsible for all the data processing services of the municipality. Its work is not confined to the provision, management and support of material and a social infrastructure for all the municipal agencies, but includes a commercial branch as well. As discussed earlier in chapter 4, the origins of the company and the technological limitations of the working model meant that it used to be highly centralised before it was set up again in the late 1980s. During the 1990s, the implementation of the networking infrastructure and the increased use of personal computers have led to a shift in working practices from the traditional top-down model of main frame information management to a more decentralised client-server orientated model.

At present, according to *Po1*, this model follows the general political guidelines of the Popular Administration, which is based on the direct participation of the users (the municipal departments) in the production as well as consumption of digital information. This general participatory policy encompasses not only the administrative uses of digital information for routine activities, but also the production of technical digital information for less routine professional activities such as problem solving:

*(...) « The direct participation of the users is an important pre-requisite in the management of the company. In our experience we found out something that is quite obvious, but it is a basic assumption which underlies the way we manage technology resources at the company. It is as follows the people who must decide what has to be done are not us, the IT professionals. The people who decide what has to be done are those who decide everything else in the organisation within which we are implementing the informational processes. How do we put this into practice? We have an Informational Committee, which brings together the decision-makers in each municipal secretariat. The committee is responsible*

*for drawing up and implementing the informational process, working out the timetable and negotiating of the amount of financial investment needed.*[8]

*Po1*'s evaluation of the praxis of the committee's organisational model for participatory working practices within routine administrative activities, stresses the political aspects of the group power relations between the municipal departments:

*(...) - Our experience has demonstrated that, whenever the committee is more prepared to comply with decision-making and is more representative of the real power of the municipal secretariat (or the municipal department), through which we are implementing the new technology and information systems, the more efficient is our relationship and the more effective and perennial the informational systems become.*
*A typical example is the case of DEMAE,*[9] *which has a very strong committee which is handling the implementation and management of a digital system for the administration of the departmental client-consumer interrelation.*[10]

*Po1* also points out that the participatory model should include a design of information systems for less routine problem-solving activities, which entail cooperative work among interdisciplinary groups. The company has introduced an informational engineering methodology for data modelling to allow an exchange of ideas between staff members who come from different technical backgrounds and have different levels of IT knowledge. The design of the data model should result from cooperation between the different technical bodies involved in the process, which are attempting to reach a consensual solution for the professional problem they intend to solve. From Po1's perspective, the main drawback of this working process is that there may be a lack of trust in the area of group social relations:

*(...) - The main problem in negotiating systems is the degree of trust between the parties involved. Generally speaking the user did not know what exactly he/she wished for, when he/she started the process of designing the system. In his turn, the systems analyst usually felt very disappointed because the user changed his/her request very frequently. So what we did was to introduce a method which would create the right conditions for achieving a formal agreement between the groups involved. This agreement is expressed through a data model, which sets out the rules agreed between the parties involved in the development of the system.*[11]

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[8] Op. cit. (3)
[9] *DEMAE* is the municipal department responsible for the water and sewerage systems in Porto Alegre.
[10] Op. cit. (3)
[11] Op. cit. (3)

On the basis of *Pol*'s evaluation, the practical conditions which are required for this working method to succeed can be understood in the case of the information systems designed for the activities of the health services, when carried out in cooperation with the PROCEMPA systems analysts and the professionals from the Municipal Secretariat of Health:

*(...) – Today, the doctors that participated in designing the data model are giving explanations about the system themselves. They are able to say what the system can or cannot do, as it is no longer a problem of the systems analyst alone. The systems analyst is not called on to say whether this system can do this or that. A glance at the data model can give everybody the means of knowing if the information does exist within the system, if it can be accessed and how. This process educates the users to know how to ask what they need from the IT guys and, at the same time, to know what they can achieve through the use of the system to solve their problems.*[12]

With regard to the information systems that allow routine administrative activities within the municipal secretariats to be modernised, *Pol* stresses the role of PROCEMPA in providing infrastructure support, by drawing the following parallel:

*(...) - PROCEMPA's role is just like that of the electricity supply; when it is faulty everybody complains, but when it is working nobody remember that it is there. This is the case with the information systems operated by PROCEMPA, which allow the organisation of the Participatory Budget to work in the way it does today. If these information systems did not exist, GAPLAN would probably not be working with just fourteen civil servants, but a hundred, and the whole process would be a mess. To some extent, the community establishes its relationship with the Town Hall throughout PROCEMPA's information system, although the whole process is not openly transparent to the public.*[13]

As regards the general level of computer literacy among civil servers, *Pol*'s view is that the culture of using personal computers has already spread to most municipal organisations. This cultural change has been achieved in the last few years through a strategy that he describes as *'controlled chaos'*:

*(...) - We have been training an average of 2500 people per year in the use of basic digital tools for some years now. And our strategy was that of controlled chaos. How was it done? We distributed a large number of personal computers to every department of the municipal administration by changing all the old terminals for personal computers. The personal computer environment has already been*

[12] Op. cit. (3)
[13] Op. cit. (3)

*implemented, for at least the last four years of the municipal administration. During this period the internal culture of using personal computers has changed a lot.*
*We had a very interesting experience at SMOV.[14] We provided AutoCad inside the PCs there and trained the technical staff members how to use it. At that time, the challenge was how to change the working culture. Today, what we have to do is to meet the requests for AutoCad which keep popping up from all the secretariats.[15]*

The introduction of advanced information communication technology, particularly the use of the Internet in recent years, is posing new challenges for the municipal organisations and the role of PROCEMPA as the manager of the whole process. According to Po1, Web access is a free service, within the company network, for all departments of the municipal administration. This includes e-mail addresses for the technical staff members and the Web site, termed *Virtual City Hall* of Porto Alegre, which comprises home pages for all secretariats and some online public services. Procempa is the manager of the City Hall site and responsible for the design and publication of the secretariats' home pages.

*Po1* explains that, to cope with the technological changes, PROCEMPA has been adopting a strategy of building up its own technical body of employees through a program of permanent training and implementing a competitive salary policy. He believes there has been a radical transformation in the technological performance of the company, which has brought about internal changes and affected the public image of the company.

**Political priorities**

The political priorities which were identified in the course of the interviews with the key subjects brought to light differences in the way the role of IT could be understood and the possible strategic uses of the Internet to further the public policies of each Municipal Secretariat. These variations seemed to be linked to differences in the administrators' academic backgrounds and professional experience as well as variations in their personal IT skills.

[14] SMOV is the municipal secretariat responsible for the following public services: public lighting, main roads and street construction, paving and maintenance as well as the supervision of major public works whenever built by privately-contracted firms.
[15] Op. cit. (3)

All the five subjects in this group (*Po1*, *Po2*, *Po3*, *Po4* and *Po5*) have Internet access at work and professional e-mail addresses. There is a wide variation in the extent of their personal practices and the amount of time they spend within digital environments. When they were all directly asked about their personal habits as IT users, *Po1* turned out to be the main user at work, spending more than 8 hours daily and extra time at home. *Po2* and *Po3* were less intensive users, spending around one working hour daily and, occasionally extra time at home. *Po4* and *Po5*, on the other hand, stated that they only used computers at work, and even then not on a daily bases, while *Po5* said that he rarely used digital tools on his own.

There were differences of perception among the members of the group. This ranged from the analytical perspective of *Po1* and *Po5* who regarded the Internet as having a global and conceptual impact on information communication technology in society at large, to a more pragmatic approach that viewed the Internet as being a new communication environment. This latter approach reflects the standpoint expressed by *Po2* and *Po3*, although *Po4*'s assessment was less precise.

*Po1* is the only subject in this group who has a technical acquaintance with the concepts of *cyberspace* and expresses his strategic view of the use of IT insofar as it applies to the general political priorities of the Popular Administration. His emphasis is on the way that e-commerce has brought about a technological gap in Brazil:

*(...) - We are indeed in a new phase of the technological revolution. Whenever there is a new technological phase, there is a chance for developing countries to attempt to bridge the technological gap that exists between them and those that are already developed.*
*This is not how I assess the position; my understanding is that the gap between the developed and the developing countries has been increasing during this process. And this gap can be directly measured by a single phenomenon - the size of the cyberspace that each one has. Anyone who intends to participate in the globalised world has to be present in cyberspace and to show their culture in cyberspace. This is what we are aiming at - to design, promote and stimulate the creation of a cyberspace in the Portuguese language. This entails designing an extensive cyberspace for the city of Porto Alegre, which could indeed place us in a non-subordinate position in the globalised world.*
*As Brazil is a very big country with huge differences, we can stimulate trade, exchange of information, and cultural exchange by opening up horizons within the country itself and the different regions... The idea is, of course, to focus on populations that register the highest levels of unemployment and those that have less access to education. Somehow they must bridge this gap and narrow what is a gulf*

*between those included in the globalised world and those that are not included i.e. those who live on the margins of society and do not have an address on the Web, or can be found anywhere in the globalised world.*[16]

Within the interviewees' group, *Po5* is the only subject who has worked out an analytical perspective which is global and socio-political. He provides an individual conceptualisation of the *information society*, which lays stress on the interrelation between the global and local characteristics of the phenomenon. His focus is on socio - political relationships:

*(...) - When you transfer wealth through out digital bits, this deeply affects relationships between countries. It modifies space and time relationships while, at the same time, transforming the totality of the planet in only one region, when each region and each place is in fact a member, a part of this totality, but at the same time an accentuated particular detail of this totality. Within the transformations that have taken place during the so-called third scientific and technological revolution, the connection between the local and the regional and, between the regional and the global, have changed in a radical way. Apart from social segregation, which stemmed from the class system, another kind of segregation has been added, which is the segregation brought about by the capacity to acquire and store information and which thus lies in the production of knowledge itself.*
*There is an inherent contradiction in the information society; it raises the possibility of absolute universalization, while at the same time, it reveals a dichotomy by offering the possibility of absolute self-segregation. How the future of humanity is going to be developed is a political decision which can only be solved in the sphere of politics.*[17]

*Po4* regards IT as a form of communication technology and provides an assessment of its institutional use in the process of public participation in local government structures. He states that he disbelieves that the use of the Internet offers any advantages as things stand at present:

*(...) - I believe that the Internet, like any other communications media, is important and necessary, especially for a particular group of people who have access and navigate through it. This is because it is not, in fact, the media through which the public participates I think that the radio provides more for our public than the Internet or even television.*
*But on the question of how the public get to participate, what counts is that they have been invited by a neighbour, the community association, a friend or even somebody else who happened to make a*

[16] Op. cit. (3)
[17] Translated from the open interview with Po5 in 07/02/1999, London, UK.

*comment about it. Of secondary importance is City Hall itself, the work of the officials of the City Hall, or the people involved in the Participatory Budget.*[18]

*Po2* and *Po3* are the subjects who express a similar approach when advocating the practical uses of IT, either to communicate, or for more technical and professional objectives. These involve the production and exchange of information for professional and public uses. Examples of IT uses include the development of the *Environment Atlas*, together with the program for environmental education by SMAM and, the GIS application for the development of the new master plan carried out by SPM. Both of these are designed to be also available at the City Hall site in the Internet.

These differences of approach among the subjects suggest that the introduction of IT within the institutional sphere has added a new range of political skills to the task of designing urban policies. These are, first of all, related to the ability of the administrator to combine short-term strategies with long-term programmes that aim to tackle the complex causes of social/spatial structural problems at a local level, through the political use of appropriate technical bottom-up methods. Secondly, there is the capacity of the municipal administrator to go beyond short-term goals, when making a political assessment of the potential of the new technology for improving these methods.

From a political perspective, the common priority identified within the group of interviewees was this bottom-up model of public participation in the sphere of local government. The goal is to combine short-term strategies for participatory decision-making with long-term public policies aimed at social change on an urban scale, although the methods employed vary in accordance with the technical skills of the different areas. This model constitutes the essence of the political objectives of the PT, which involve putting into practice *direct democracy* in the municipal sphere.

*Po5*'s evaluation of the Participatory Budget process provides a clear summary of this political model and the concept of society it entails:

[18] Translated from the open interview with Po4 in 07/12/1998, CRC, Brazil.

*(...) – In the city, you will never escape from political questions. There is a view, which in my opinion derives from right-wing conceptions, which holds that the Participatory Budget is the renewal of an urban planning culture and of the political aspects of this culture, and that this means it can be conducted by any government. This is a fallacy!*
*It should be realised that, this is essentially a social model, a model of social organisation. If you regard the Participatory Budget as a historical abstraction, it will become a form of social control over the structure of the State that combines direct democracy with representative democracy. If you regard it historically as an abstraction, this is what it is – in much the same way that we regarded the commune in our previous view of 'exclusive' direct democracy.*[19]

This model of direct democracy has been set up on the basis of two levels of social organisation on a local scale. In the first place is the re-organisation of the civil society on the basis of social movements emerging from grassroots communities outside the sphere of government. Secondly, there is the linking of the municipal sphere and the administrative structure that was forged through the organisation of a new and highly political body of civil servants, the GAPLAN and CRC, which was attached to the old administrative structure of the municipal technocracy.[20]

With regard to the political challenges embedded in the implementation and management of the participatory bottom-up model, the subjects expressed two main lines of concerns:

(a) the incorporation of the bottom-up decision-making model in the working practices of the whole administrative structure of the municipal technocracy
(b) the translation of this participatory decision-making model into the design of institutional cyberspace in Porto Alegre.

With regard to the first challenge, which has been present ever since the PT came into office, the group of five interviewees all identified the project *Constituting City,*[21] as a turning-point within this political struggle. This movement led to a lengthy and extensive process of revision and the drawing up of a new plan. *Po5*, who was the intellectual and political mentor of the process, summarised the conceptual bases of this political strategy as follows:

[19] Op. Cit. (17)
[20] See Chapter 4: sub-section 4.3.1
[21] See Chapter 4: sub-section 4.3.1

*(...) - The Constituting City was a strategic attempt to break away from the necessarily corporate outcomes of the Participatory Budget. Geographical corporatism, as I said is the opportunity, a necessary 'geographical corporatism, which was natural because the methodology of the Participatory Budget compelled the people to fight to secure public investments for their own geographical region, even though they did confront their needs with the rest of the city.*
*What does breaking away from this geographical corporatism mean?*
*It means the following – creating a tense situation between the Participatory Budget delegates and the respective Councils, in their dealings with the economic, cultural and political interests of the city as a whole. These interests embedded the bases of the power distribution in the city. This is done through the form by which the city is organised, reproduced and reconstructed. The means that the government has of controlling the interrelation between urban development and the social power relations struggles in the city is the master plan. This was why the First City Congress drafted the master plan as the subject of the second Congress. It was, in effect, an attempt to transform neighbourhood citizenship, the citizenship of a region in the city, into a more complex level of citizenship, that could link the citizens to the city as a whole and, to the city in the economic context of the State and the Country.*[22]

*Po5*'s evaluation highlights the political aspects of group social relations and the power struggles that arise between three social groups (with internal subdivisions) within the participatory strategy for drawing up the new master plan:

(a) construction industry
(b) municipal technocracy
(c) popular organisations from the Participatory Budget structure and civil society organisations.

*(...) - In my opinion, it was a highly educational process because it was the first time in the city's history that the subjects that reproduce the city through private investments, the State bureaucracy (the civic bureaucracy) and organised citizenship were brought face to face. Nevertheless, the result is always the result of a good deal of negotiation.*[23]

*Po5* summarises the process of preparing the new master plan and claims that it is the result of a political negotiation between these diverse social groups:

*(...) - The agreement that was made is more or less as follows... It is necessary to use the productive force of capital and, at the same time, to place this force on a rational footing that benefits citizenship. In view of this, a series of modifications were suggested which included: changes in the spatial pattern of urban property; changes in urban land use; the use of more flexible planning indices; a larger public*

[22] Op. Cit. (17)
[23] Op. Cit. (17)

*appropriation of the floating capital as well as, the capital that is invested by the construction industry and the creation of the possibility of having building sales figures, with all the urban codes which make up this well- known process. A threefold social conflict arose from this controversy.*
*In the first place, the bureaucracy of the City Hall was under the influence of a vision of the city which was hegemonic and functional. In fact, it was purely functional and derived from the modernist perspective which prevailed at the beginning of the 20th Century. As regards the construction industry group, they knew that they had to make concessions, but clearly they wanted to maximise their profits which is perfectly natural and understandable. However, these had to be adapted to the collective interests of the whole city.*
*When it came to citizenship, citizens who had already made a political appropriation of the city, they wanted to ensure that this political appropriation took on a material form and became the material face of the construction of the city. I believe that this was put into the revised version of the master plan. I know that the plan has suffering from a number of adjustments and it is due to be voted on this year.*[24]

The new master plan embedded a wide political agreement and was officially adopted as the model for the development of the city by the different social groups. Two interconnected political constraints had to be overcome before these technical urban roles could be put into practice in the city through a bottom-up system of decision-making. The first is related to the administrative changes that have to be introduced within the working process of the local technocracy in accordance with this bottom-up model. The second referrers to the systematic formalisation of the urban model of development and its necessary translation into less technical language so that the popular organisations can actually participate in more complex decision-making processes.

The first set of constraints were strategically approached by democratising the *administrative councils*, which are structures for public participation within the sphere of government and defined by municipal law. According to *Po5*, a distinction must be made between the democratisation of these structures (such as the Council of the Master Plan) to guarantee the inclusion of all social groups (the community, the administrative body of the City Hall and economic groups) and, the new model of direct democracy. *Po5* states that the direct democracy model embedded within the Participatory Budget Council (like the other forms of *popular councils*)[25] has been formed outside the governmental sphere but within the public sphere and should

[24] Op. Cit. (17)
[25] This is also the case with the *Regional Councils of the Participatory Budget* and the *Delegates Council* within the communities in the regions, among many others.

remain so. This feature is the essence of the new political culture that has been developed within the process. It includes *self-organisation,* or the ability of citizens to run their own social organisations and *self-regulation,* i.e., the capacity of citizens to make their own organisational rules and, therefore, develop new forms of social control over the State and its institutions.

*(...) - The great achievement of the Participatory Budgetary process is to be a form of jurisdiction which is constituted outside the State. It is a public form of jurisdiction insofar as any citizen can participate and general interests prevail over private interests but it is a jurisdiction which is self-regulated. It should be realised that the rules that regulate the functioning of these councils (the ways in which consensus is reached about public spending, the rules for the election of delegates and the order of priority which is given for civil constructions), are made official through the Internal Statutes of the Participatory Budget, which are agreed on in a vote by the councillors. Thus, this represents a form of binding legislation.*
*How can this process permeate the state structure and, thus, have an influence on administrative bureaucratic decisions? The answer is through the participation of the representatives of the Participatory Budget within the administrative councils. If the Participatory Budget were part of the state structure it would have no reason to exist at all.*[26]

With regard to the second kind of political constraints, insofar as they affect the participatory process of implementing the new master plan, *Po5* stresses that there are political limits to the *State logic* (i.e. the logic of power relations within the governmental structures) inside the administrative councils (such as the council of the new master plan):

*(...) - You can implode the dictatorship of the capital in three ways. First, through a new master plan, second through increasing the participation of society in the Master Plan Council and third, through the political scheme implemented by the government. This new political logic which comes from the government, is the determining factor. Because if you have a right-wing government running the city, it will impose a dictatorship of knowledge that is expressed in strictly legalistic terms even though the law is intended to be interpreted in a different way. So you must have a master plan with a degree of flexibility. You also need strong participation on the part of society and finally you should have a political scheme for the city government.*[27]

*Po4* agrees with the view that there has been a general process of change in the political culture of popular participation, during the ten years of the Participatory

[26] Op. Cit. (17)

Budget praxis. Adopting a more pragmatic approach, he claims that there has been an interruption in the strategy to achieve wider public participation, which is embedded in the reform of the master plan and the democratisation of the Master Plan Council. The reason for this is the long period of time it has taken to obtain the approval of the Municipal Council and pass the necessary legislation. The present political strategy aims to combine the geographically-based organisational model of participation (from the Participatory Budget) with the planning regions of the new master plan and the programme of administrative decentralisation. This suggests that the local model of direct democracy has still to overcome the inevitable pitfall of *'geographical corporatism'*, as conceptualised by *Po5*.

*Po3* shares these general political assessments; however he argues that the legal urban planning mechanisms to implement wider participatory planning practices are ready to be put into effect, although with different levels of systematisation. He maintains that while the new plan was being submitted for approval, the Municipal Secretariat of Planning was engaged in the implementation of two key strategies to cope with the participatory challenge.

The first concerns the internal re-structuring of the secretariat so that it can work with new technical planning based on a bottom-up decision-making model. This includes both the need to review the legal means of planning the *irregular city* and forms of public participation, and the formulation of new techniques for a more dynamic and flexible management of urban space as a whole. The strategy adopted has been to set up cooperative programmes with academic institutions to help in the formulation of these new planning instruments as well as introducing participatory methodologies.[28]

The second is related to the implementation of pilot schemes to test new methodologies for bottom-up planning practices. Two schemes in particular have been applied after being subject to a number of experiments. The first is linked to the introduction of changes in the internal working-place and involves an attempt to set up *inter-secretariats* or *integrated urban schemes* for strategic areas of the city, as

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[27] Op. Cit. (17)

[28] FACLAM and UFRGS have been the main partners. Since 1997 SPM has established a partnership programme with the PROPUR/UFRGS, which aims to develop a *System for the Evaluation of the Urban Impacts* (Sistema de Avalição de Impactos Urbanos). The goal is to form a technical and professional base to support bottom-up praxis of decision-making.

outlined in a proposal issued by the Planning Secretariat.[29] The second entails recent strategies for the development of public-private partnership projects, or *'concerted operations'*,[30] usually on the initiative of the private sector.

*(...) - This comprises the concept of public-private partnership and usually involves the development of large urban equipment in the city by the private sector. It means that in the planning region where the development is going to take place, you can get together the entrepreneurs, the community and the government to negotiate the range of interests in the project. In this way, the people can become the protagonists in the process of decision-making in urban planning.*[31]

*Po4* says that the participatory practice of holding public meetings within the region where a partnership project is due to be implemented, has brought about a new political climate of decision-making, even among the private investors. He maintains that these meetings have opened up a new democratic arena for political negotiation where it is possible to discuss large-scale urban schemes and the evaluation of their environmental, social and economic impact, and within which every social group involved has a voice. This methodology has been confined to a consultative aspect of public participation.[32]

There is no agreement among the five interviewees about the second important political challenge which is the development of institutional cyberspace in Porto Alegre, although, in principle, they are all in favour of the general idea of a democratic use of IT. This suggests that cyberspatial technology has only recently become a political issue for the Popular Administration. The political priorities in this field have been internal demands for the management of the administrative structure and the technical aspects of professional back-up. There is no common understanding about how the participatory decision-making model can be translated into institutional cyberspace.

According to *Po1*, the municipal political strategy of IT has been put into effect in two branches of PROCEMPA as an Internet service provider: the commercial and the

[29] See *Segundo Plano Diretor de Desenvolvimento Urbano e Ambiental de Porto Alegre*, 1997
[30] SPM underlines two recent experiences (a) the *Cristal Shopping Center* developed and already implemented in the South zone of the city (b) *Carrefur Hypermarket*, a major project which is going to be constructed in the Assis Brasil region, in the North zone of the city.
[31] Translated from the open interview with Po3 in 19/11/1998, SPM, Brazil.

institutional.[33] The first branch focuses on developing cyberspatial technology for commercial purposes, increasing the availability of online services for customers (private users) and promoting new forms of e-commerce. The second branch centres on the institutional use of the technology for the requirements of the municipal administration. It also aims to expand online civic services and information by designing and implementing an experimental Web site for the City Hall of Porto Alegre. However, the development of the political strategies of the company is restricted by the lack of a telecommunications infrastructure.

*Pol* maintains that a number of pilot schemes have been developed to test and expand the know-how of the company with regard to cyberspatial technology. There has also been the need for technical cooperation between academic organisations and the IT research centres. Two kinds of pilot schemes are being tried out: those that are concerned with designing an institutional site and the promotion of online civic services and, the schemes about the issue of expanding cyberspace in Porto Alegre by improving public access to the Internet and civic services.

*Pol* explains that the reason why the institutional Web site has an experimental character is that, at present, there are limitations in the telecommunications infrastructure. He also claims that the company is already revising the municipal systems of information, which are based on the client/server network concept, so that it will allow the use of more advanced cyberspatial technology and thereby increase the number of available online civic services in the near future. The initial target fields include the following:

(a) a health system - the pilot schemes for the digital automation of the municipal health system, which includes new services such as tele-conferences and computer graphics applied to health services
(b) an urban planning system - the pilot schemes for the development of the on-line services for planning and building applications. The first consists of the use of GIS technology for managing the new master plan. The second consists of the use of

[32] The government has implement new planning legislation that requires an environmental and socio-economic evaluation of the impact of any urban enterprise larger than two thousand square metres.
[33] See Chapter 4: sub-section 4.3.2

computer graphics in the supervision of the municipal regulation of building projects

(c) a traffic system - the pilot schemes for the digital automation of the traffic system include on-line monitoring of the urban traffic and public transport network, and introduce Web-cams and digital traffic surveillance equipment.

With regard to the strategy for cyberspace expansion, there is an extensive partnership program that since 1995 has been involved in laying down the general terms for the development of the *Porto Alegre Technopoles*. This is made up of the municipal government, the local IT entrepreneurs, the academic and research organisations and the Federal government institutions. A number of cooperative projects have been launched under this broad umbrella. Included among them is the *Tele Porto*, which is concerned with setting up a telecommunications infrastructure and, the *Metro Poa* that is involved in the various fields described above.

When dealing with the basic question of how IT can be used to empower the disempowered communities, *Po1* stresses the role of education:

*(...) - The fundamental question raised by the disempowered is always the same thing, namely the issue of Education. But I am not speaking of education in a restricted form, as just referring to training, training in computer skills. There is the prospect of people learning how to learn systematically. This means that reasoning, critical thinking and a feeling of independence are more important than the knowledge learned in the past.*

*How can a third world country such as ours, with its immense economic restrictions and sharp divisions in educational opportunities face this problem?*

*In my judgement, the answer must, of necessity, include having access to Education and cyberspatial technology, as well as getting the community involved in the relevant decision-making processes. It also means making IT available for them, whenever possible and, thus, creating a technological culture in the city. This also means expanding our Cyberspace.*[34]

With regard to the field of education and cyberspace, the municipal strategy follows the same pattern. There is a partnership program between the Municipal Secretariat of Education (SMED) and the Federal University of Rio Grande do Sul (UFRGS/LEC)[35] for the pedagogical use of the IT within the network of municipal schools. This has

[34] Op. Cit. (3)

been developed since 1996, (under experimental conditions) in a small number of schools. As the results turned out to be positive, PROCEMPA is now responsible for providing the digital infrastructure for the entire network, which is also acting as the test site for the implementation of a new local telecommunications infrastructure (RDS, Digital Network of Integrated Systems).

*Po1* maintains that, at the moment, the company does not have the appropriate infrastructure and financial resources to extend access to the community associations at large (estimated at more then three hundred), despite the requirements of the community. The company is trying out a partnership project for the implementation of computer labs in two different community associations,[36] in line with the national program *'Solidarity Community'*.[37] *Po1* provides a positive assessment in which he stresses the wide-ranging educational implications of the project:

*(...) - Many of these kids, at Vila Cruzeiro, are more accustomed to their own pages on the Web than many of our employees at the company, who despite being users of the technology did not receive enough encouragement to create their own pages. This is an important relationship that reverses the traditional roles; it is the kids who have started to be the subjects of the process, building their own homepages, and their own culture.*[38]

The contextual evidences provided by the group of key informants of the municipal government, lead us to conclude that the strategy of partnership with civil society organisations played an important role in the process of developing the institutional use of information communication technology or, to use *Po1*'s expression, *'developing the size of Porto Alegre's cyberspace'*.

### 6.2.2 Key informants from civil society organisations and selected public events

An examination of the contents of the open interviews supplied by the key informants of civil society organisations, enables us to identify two additional areas which involve the institutional use of IT by the Popular Administration. The first concerns the

[35] See Chapter 4: sub-section 4.2.3, for an overview the national strategy for partnership programmes in distance learning and IT.
[36] These comprise the *Murialdo Community*, run by the church at *Vila Morro da Cruz* and the *Community Association of Vila Cruzeiro do Sul* run by the grassroots community itself.
[37] See Chapter 4: sub-section 4.2.2
[38] Op. Cit. (3)

implementation of academic partnership programmes and focuses on the two examples of IT applications in important academic fields - urban planning and education. The second is related to grassroots community partnerships and setting up pilot schemes which are aimed at extending public Internet access to empower community organisations in shantytowns.

The results of semi-structured observations of two selected public events (the Carrefur Public Hearing meeting[39] and the 1st Forum of IT and Education - Vila Restinga[40]) are given in the course of this discussion; these provide additional evidence of the interrelationship between the local government and the civil society organisations.

**Academic partnerships**

The two key informants in the academic field are responsible for the partnership programmes in their respective academic fields and their inter-institutional relationship was formed under the same wide umbrella agreement for institutional cooperation, which had been made between the City Hall and the Federal University (UFRGS). Although both interviewees are staff members from the same university, their research fields are linked to different academic departments (urban planning/PROPUR and cognitive psychology and IT/LEC), as well as different departments in the municipal administration (SPM and SMED, respectively). This means that each cooperative project has a single goal and was set up along different academic lines and research approaches, which are not connected with each other either within the municipal administration or the university.

*Cs1* is the key informant in the urban planning academic field. He is the person who is responsible for spreading the theoretical conception of *Decision Support Systems* among the team of urban planners within the municipal administration, while the old master plan is being revised. The idea was later incorporated by SPM and embodied in the new text of the master plan law (2nd PDDUA).[41] As a result, a reference term for the development of a cooperative program between PROPUR and SPM was

[39] See Box 1 in Annex 3 for a summary of the observations and an illustration of Assis Brasil region.
[40] See Box 2 in Annex 4 for a summary of the observations and an illustration of Restinga region.
[41] See *II Plano Diretor de Desenvolvimento Urbano e Ambiental de Porto Alegre* (1997)

formulated in 1997.[42] The aim of the agreement was to design a *System for the Evaluation of Urban Impacts*, and included a pilot scheme which would be implemented, under experimental conditions, as a necessary first step in the development of the general program. *Cs1* states that there has been a discontinuity in the negotiation process and no further initiatives to contact PROPUR have been taken by the municipal administration, since the reference term was formulated.

On the basis of his professional expertise, both as an academic researcher and as a former institutional urban planner, *Cs1* has expressed reservations about the national and local urban planning culture and the possible role of master plans within decision-making processes at an urban level.

*(...) - My conviction today is that we should already have abandoned this type of master plan, which is something that derives from the post-war period. It is based on the idea that you can design the final form of a city and draw up a Plan, in the hope that the real life development of the city will be modelled by Law, and that this will make them fit together.*
*So what does the Plan do? The Plan brings together a group of experts who attempt to find solutions to every kind of problem and then work out what things should be like. Then what do the other people do who follow in their wake? They apply the Law. Eventually, a group of technocrats emerges who are responsible for working out the details; they are the 'wizard learners' who try to solve the things that were not foreseen. They are needed because our planning culture is so legalistic. How does it work then? It works by comparing individuals' activities with the regulations. And what do the regulations do? The regulations exempt the subject, who is a machine operative of the State (i.e. a technocrat), from proceeding with any analytical evaluation.*[43]

*Cs1* highlights the technical aspects of the use of this legalistic type of master plan, which opposes the participatory project of the Popular Administration, and claims that this model puts a restraint on the possible uses of new mechanisms to support the process of bottom-up decision-making.

*(...) - There seems to be a dichotomy between the generic political idea of having a State which is more controlled by civil society and, thus more open, more flexible and more malleable to processes of participatory decision-making and, the fear of what might result if the traditional urban rules are abandoned. These are the rules that traditionally control urban forms and constitute urban law.*

[42] See *Sistema de Avaliação de Impactos Urbanos: Termo de Referência* (1997)
[43] Translated from the open interview with Cs1 in 08/01/1999, PROPUR/UFRGS, Porto Alegre, Brazil.

*They must be replaced by procedures through which at every moment, you are taking note of your context, looking at your past and planning your future a little bit ahead. This does not mean to say that you can forecast what things will be like in the future, but rather the aim is to set up planning procedures whereby little by little, reliability can be built into these new planning measures.*[44]

In following a technical approach, *Cs1* explains that the new master plan conforms to the same methodological path as the old one. It has not yet been possible to achieve the desired flexibility within this model, because the new plan did not introduce any paradigmatic change either to traditional urban patterns or to the legalistic approach.

*(...) - I do not know the details about the alterations introduced to this last version of the new Plan, which is at the Municipal Chamber at present. But I do not believe that space was created in the original proposal; what actually happened was that something new was put on top of something old. In other words, all the old planning parameters were maintained, the normative foundations of the old plan were left unaltered and, on top of that, nobody knew how this new thing would work or apply to the real world.*[45]

In addition, the technical planning mechanisms to allow informed processes of decision-making, i.e. the decision support systems, have not yet been constructed.

*(...) - The difficulty here is for the city halls and the local governments to build systematic ways of doing so, precisely because this goes against our planning culture. For instance, if one is to have a System for Evaluating Urban Impacts and to make decisions on the basis of this, it is necessary for the norm to be neutralised. How will it work otherwise i.e. if the impact contradicts the norm?*
*When this new type of planning measure is implemented together with an information support system, one has to assume that these regulations can be abolished and replaced by an analytical capacity. But, if this does not exist, it is not possible to abolish these regulations. To achieve this, one needs a systematic support which has to be organised and objective so that it can determine how people will proceed in the new situation.*[46]

The features of the transitional phase described by *Cs1* lack the support of any systematic analytical system; however, they describe the present stage of urban planning praxis within the Popular Administration, when it is concerned with making decisions in unforeseen legal situations. At the time when the fieldwork was carried out in Porto Alegre, this researcher had the chance to take part in a public meeting that

[44] Op. Cit. (43)
[45] Op. Cit. (43)
[46] Op. Cit. (43)

illustrated the development of this planning praxis. This meeting discussed a request for planning permission made by a private regeneration development company in the North of the city, which included, among other urban projects, the construction of a hypermarket, by an international commercial group (Carrefur).[47]

According to *Po3*, the goal of these *concerted operations* is not only to negotiate additional concrete investments (such as road works, implementation of traffic lights, green areas and so on) with the private developers, but also to consider the social and economic impact it will have on the local communities. However, the point made by *Cs1* was that, unless the systematic mechanism for technical analysis is defined, the political (and sometimes ideological) arguments tend to dominate the negotiation process and thus jeopardise the very essence of the bottom-up decision-making democratic praxis. This was clear observable in the actual proceedings of the public hearing meeting, as when discussing the case of the Carrefur Hypermarket.

*Cs1* also makes clear that the proposed *System for the Evaluation of Urban Impacts* is a new instrument even within the local academic community, as it is based on urban configuration studies and the urban convergence theory. It comprises two digital applications (one for the creation of urban indicators and the other to simulate urban changes); they were designed by *Cs1*'s research team as part of an academic project. These applications have only been applied under experimental conditions and the system has not yet involved the use of advanced information technology or GIS technology. Another drawback of the system is that it does not take into account the process of popular participation; it is a technical instrument designed to be used by the urban planner technical experts to inform decision-making processes. *Cs1* states that PROPUR's academics also made a contribution in this area during the master plan review period.

The academic partnership follows a distinct epistemological approach which allows it to have a broader perspective of the field of education. This is related to the introduction of a theoretical paradigmatic shift, as it applies both to the educational program of the Popular Administration, and also the approach to the way IT can be

[47] See Op. Cit. (39) for a summary of the observations I made at the meeting with regard to the decision-making mechanisms that support the *concerted operations* (or public-private partnership).

used within this program. According to *Cs2*, who is the academic co-ordinator of the program, there are three parallel processes which have contributed to the growth of this partnership.

First of all, there are the results of the academic research which has been carried out by the Laboratory of Cognitive Studies (LEC/UFRGS), over a period of more than fifteen years and follows an investigation into genetic epistemology and learning processes. Secondly, there is the political will displayed by the Popular Administration in introducing a radical change in the pedagogical program of the municipal schools. And thirdly, there is the development of IT itself and the governmental policy definition to make it accessible to the system operating in municipal schools. The convergence between these processes has enabled the partnership program to grow since 1994, although this has entailed a long and arduous process of negotiation and the development of cooperative working methods between the institutions involved (LEC, SMED and PROCEMPA).

*Cs2* explains that she embarked on a scientific investigation in this field back in 1981, when personal computers were just beginning to become available for academic purposes in Brazil. At that time, the research was limited to a number of case studies, and focused on children with learning difficulties from state schools in Porto Alegre.[48] Since 1996, *Cs2* has been the co-ordinator (in association with other Federal Universities) of a national project (Pro-Info) that aims to implement the use of IT to improve the learning process in state schools all over the country.[49]

*Cs2* claims that LEC pursues a multi-disciplinary approach in using IT that is based on 'the genetic epistemology theory' which explains the development of intelligence in the child:

[48] Since then the research has focused on the use of personal computers for the improvement of the child learning process by adopting a constructivist approach. At that time, it entailed an investigation into the use of the LOGO language, which was developed by Seymour Papert at MIT, Boston, US.
See also Chapter 2: sub-section 2.3.2.

[49] The goal of the Pro-Info program is to implement *IT Centres*. Five experts, who are specially trained by LEC to supervise the work of a group of up to fifty schools, make up Porto Alegre's IT Centre. The program also provides financial resources for the implementation of the digital network infrastructure in the schools. If they wish to participate, the schools have to submit an application together with their own research project.
See Chapter 4: sub-section 4.2.1 for an overview of Pro-Info national policy.

*(...) - Genetic epistemology is very clear about the development of young children. The young child is self-centred at the beginning of the development. And why is this so? It is because the child can only see from her/his own point of view.*
*Cognitive development occurs through the child's activities themselves, it is the child's activities that begin to be coordinated. This coordination which to start with is a purely sensory-motor function, turns into a perceptive coordination and later, into a coordination of representations and abstractions. This happens through the development of interactive activity and interaction with the environment.*
*This interactive activity has to be accelerated for the cognitive development to progress and the cognitive development is measured by its capacity for 'decentration'. It is only when a child reaches a certain level of inference coordination that he/she can achieve decentration and realise that there exist other points of view. This is accompanied by the realisation that she/he sees from a certain perspective while also being able to see from other perspectives and, that different people have other perspectives as well.*[50]

*Cs2* follows the same approach and conceptualises social development and participatory processes in relation to the use of IT:

*(...) - The development of reasoning or, the application of skills through logical reasoning (or either sensibility or creativity) is conditioned by the coordination of a great deal of information and a large number of inferences. The subject sets out from one inference and attempts to effect coordination with new inferences and through this process arrive at inferences at a higher level.*
*This is also the cognitive mechanism which is involved in participatory processes and is more than just a question of revealing different viewpoints. The subjects (i.e. the people involved) must develop decentration so that they can promote the participatory processes. This is because being self-centred is a sign of inadequate cognitive development. When the subject does not coordinate different perspectives, she/he also fails to coordinate different variables, which means that the process of reasoning cannot be developed.*
*The issue of social exclusion, which begins at primary school with the child's academic failure, can be regarded as a paradigmatic conception of human development and the way it can be promoted. Consequently, social development, moral development and the development of values as well as social justice and the capacity to solve problems are all connected with the development of decentration. Yet decentration is the ability to coordinate different perspectives and different points of view, so how can this technology help? It can help by simply promoting the process of decentration.*[51]

*Cs2* points out that this is a particular view of the pedagogical use of IT in Education, and follows the principle that people (teachers and students) should use IT for the development of their own learning activities and obtain IT skills while pursuing these

[50] Translated from the open interview with Cs2 in 03/12/1998, LEC/UFRGS, Porto Alegre, Brazil.
[51] Op. Cit. (50)

activities. This contrasts with the prevailing view, as much as it runs counter to the dominant culture, both with regard to the development of the learning process in general and the development of IT skills.

When considering the child's learning process within the institutional system of education, *Cs2* draws attention to the concept of error and how the *constructive error* concept can be applied to improve the learning processes through the use of IT:

*(...) - One of the pedagogical principles that we use is not to correct the child's academic work. In other words, the children should be allowed to publish their own pages in the Internet while they are progressing with their academic work and exchanging information and ideas with other students. This is because the child has a hypothesis and it is necessary to let the child develop his/her own work in order to test his/her own theory.*

*Our goal is to enable students to realise for themselves that the solution they are looking for is mistaken, or that their data is incorrect, through the use of IT to promote interaction, communication and an exchange of ideas between the different learning communities. The children should be able to ask themselves - how is it possible that one student can obtain certain data and another student following the same method get the same data, and yet they both end up with different results? Why did this happen?*

*The implication is that it is through the process of carrying out research projects or of seeking solutions to problems, that children can sort out their doubts and uncertainties and, as a result, learn to define the criteria they are employing and develop their reasoning faculties so they can find the best answers.*[52]

*Cs2* claims that LEC's genetic epistemological approach to the use of IT within the institutional education system has found fertile ground in the educational policies of the Popular Administration. The Municipal Secretariat of Education has introduced the *direct democracy* paradigm into the educational system through the implementation of a program termed *citizen school.* This is aimed at combating social exclusion in the poorest regions of the city, where the municipal state schools are located.

*(...) - The so-called 'citizen school' embraces the concept that the child is a citizen in development and must be taught according to her/his social, economic and cultural circumstances and needs.*[53]

This municipal program included two major changes within the educational system, on a local scale. The first is concerned with the collective administration of the school

[52] Op. Cit. (50)
[53] Op. Cit. (50)

through the *popular council* model, within which the council is responsible for the management of a quota of the school's budget. The *head masters' council* is made up of representatives from the school employees, teachers, students and parents. *Cs2* states that this management model has helped to change the relationship between the local community and the school, which is now seen as part of the community.[54]

The second major change is related to the pedagogical program and the curriculum, which has been re-designed to reduce academic failure. The new municipal policy has introduced the idea of *learning cycles,* which is a more flexible curricular structure to adapt the school's program to the peculiar features of the students and the local communities. A first step in this strategy consists of developing anthropological studies among local communities in different parts of the city. On the basis of essential requirements, the school defines the academic contents which should be included in the pedagogical program, first as a general theme and later divided into transversal themes. This process involves a radical change in the teacher's own training, as they had traditionally received teacher-training at university and been used to following an academic program that disregards contextual differences. In *Cs2*'s view, if the school programme includes the study of local problems, (such as public health or environmental issues, which stem from a lack of urban infrastructure in the region) it will also manage to involve the local communities through the students' parents and families.

However, *Cs2* maintains that when adopting these paradigmatic changes, the use of IT is faced with a major challenge; this concerns its ability to create *autonomy* and *cooperation* through learning processes within the municipal school system:

*(...) - So we ask - what is our goal? It is the development of cooperative work. And, how do we define the citizen? It is a person who works in the interests of the collective well being and who is able to cooperate or to work in cooperation to bring about something that might benefit everybody else. The cooperative work can only be developed if we cooperate when carrying out some work.*[55]

*Cs2* argues that apart from these radical changes, there is also the challenge to get the schools to open up the learning process and to exchange their academic experiences

[54] Most of the municipal schools are located inside the shantytowns and tend to be the centre of vandalism and burglary by the deprived local communities.

with other communities. It is in this process that the constructivist approach to the use of IT might make a contribution:

*(...) - If the teacher is developing his/her work cooped up inside the classroom with the students and the students do not interact with their peers, even within the same school, how is it possible for schools to interact with each other?*
*However, if we connect all the municipal schools through a digital network and make Internet access available to the schools, every school might interact with each other and every activity within one local community might benefit all the others. Naturally, it depends upon the degree to which this interactivity is stimulated, supported and utilised. This is one view that can be held about the use of the technology.*[56]

*Cs2* thinks that, while this partnership program has been put into effect, there have been two factors which have hampered the implementation of this methodology – constraints in the social infrastructure (human resources) and the material infrastructure (digital telecommunications infrastructure). The latter was particularly the case at the beginning of the program, when PROCEMPA was not prepared to meet its requirements and most of the material support was supplied by the university research funds. As *Po1* states, today PROCEMPA has already started to implement the material infrastructure on a broader scale and a scheme for implementing a fiber-optic network is already underway, although the resources still fall far short of what is required. The issue of human resources is also related to a wider cultural change that opposes the traditional academic training of municipal teachers and IT experts.

As *Cs2* explains, the process of change within the educational system, is already under way in Porto Alegre:

*(...) - This is a process that is already being developed, but it is not something that you can plan, implement and benefit from through short-term strategies. On the contrary, it is something that is being built for the long term, with ups and downs, conflicts, imbalances and renewed equilibrium. Yet it depends on the political will of the local government, because it can be obstructed.*[57]

At the time the fieldwork was being carried out, the municipal schools were having their summer holidays. However, this researcher had the opportunity to participate in and observe an end of the year event which was laid on by a state school at Vila

[55] Op. Cit. (50)
[56] Op. Cit. (50)

Restinga. This illustrates the paradigmatic changes, which are taking place within the learning process, although *Cs2* points out that this school is a recent member of the Pro-Info program in Porto Alegre.[58]

**Grassroots community partnership**

The two key informants from the grassroots community partnership scheme are both members of the community association of *Vila Cruzeiro do Sul* (AMOVICS), which is situated in one of the oldest shanty towns in Porto Alegre. The association itself was founded in the late 70s during the time when the popular movement was reorganised. The total population of *Vila Cruzeiro do Sul* is estimated as being made up of about 800 households. The *vila* lies within a large conglomerate which consists of more then 15 neighbouring shantytowns. The community associations of each *vila* form part of a wider community coalition called the *União de Vilas da Grande Cruzeiro* (Union of Great Cruzeiro Shantytowns).[59]

*Cs3* is the chairwoman of the association, as well as the intellectual mentor and co-ordinator of the project, which is seeking to introduce a Computer Lab in the *AMOVICS*. The chairwoman of the association is also the political representative of *Vila Cruzeiro* at *União das Vilas* and of the Popular Administration's participatory process. *Cs4*, on the other hand, has no direct involvement with the implementation of the IT project in the association, but he has an important role within the community organisation policy which is being put into effect by the association.

In January 1999, when the interviews were carried out, AMOVICS was preparing to hold the annual election to decide who would run the association in the next term. Both community leaders were very busy working for their re-election, but they kindly managed to fit the interviews in their timetable of meetings at the AMOVICS' site, which is on the hillside of *Vila Cruzeiro do Sul*. The interviewees have only received primary school education and no IT skills at all. They have lived at Vila Cruzeiro for more than twenty years and are now young adults in their early thirties. This means that they have spent their time as teenagers and young adults within the social

[57] Op. Cit. (50)
[58] Op. Cit. (40) for an illustration of the constructivist praxis in the use of IT within learning processes.
[59] See Chapter 4: sub-sections 4.2.2 and 4.3.1

environment of Vila Cruzeiro. *Cs4* states that to dwell at Cruzeiro used to be regarded as a social stigma and was the cause of a lot of social prejudice, because the *vila* used to have a very bad reputation, which stemmed from the activities of local drug dealers.

*(...) - Street life in the vila was very dangerous because there used to be conflicts between drug dealers in the nearby vilas and the children used to get involved in fights between gangs. Today this has all changed and it is much safer. We still have some drug problems however, but not on the same scale as before. Everything is much calmer now and you can walk on the streets, even late at night.*[60]

*Cs4* believes that the reasons for this improvement in the life of the *vila* is to do with the implementation of a better basic urban infrastructure and a greater number of services as a result of the Participatory Budget process which has been introduced by the Popular Administration in the last ten years. Today, every household in the *vila* is provided with a water and sewerage system, the street lights are working properly and the main streets are paved, which means the vila can be reached by public transport. The community has also joined the wider municipal program of property regularisation in the shanty towns and, is taking part in a collective process to legalise its urban squatters' rights *('usocapião urbano')*.[61] The fact that people feel confident that they are going to become the legal owners of their plot of land has encouraged them to invest in improving their shelters, which are largely brick houses. A municipal housing scheme has been set up to assist in the transfer of households that have had to be moved to a nearby area from their original site because of building work. This also involves a partnership program, in which the municipality is responsible for the construction of basic sanitation services, while the community, under the supervision of the association, carries outs a collective process of self-help housing construction.

The interviews provided evidence of a strong social and cultural link between the community leaders' personal experience and their understanding of and enthusiasm for the work they do. *Cs4* stresses that his work for the community association is voluntary. He revealed that he supports his family (a wife and three children) by working on night shifts as a waiter in a pizza restaurant so that he is free to do community work during the daytime and at weekends. As chairman of the financial advisory board of the association, it is his duty to supervise the whole of the

[60] Translated from the open interview with Cs4 in 08/01/1999, AMOVICS, Vila Cruzeiro do Sul, Porto Alegre, Brazil.

construction work being carried out by the municipal administration in the *vila*. This includes a range of activities, from housing development and street-building to maintenance of local public services (e.g. street lighting and garbage collection). The kind of community tasks that he enjoys best are those that involve activities with child-care, including the organisation of sports and cultural events for boys aged 7-13.

*(...) - My work is voluntary. I do this just because of the association, just because I love to do community work for the sake of it. Ever since I have lived in the vila I've always enjoyed playing with children. And, although I am going to be 30 this year and have three kids of my own, I still feel like a child. My wife always says to me: - You are a real child!* [62]

*Cs4* also revealed that he had been a homeless child and grown up in a State care home (FEBEM).[63] This might explains his great sympathy for the kids that dwell in the *vila* and why he shares their passion for football in the streets. He is eager to talk about his work as the AMOVICS' coach and the organiser of the official children's football teams:

*(...) - This work with the football team is aimed at taking these kids off the streets...getting them to give up drugs... We want to give them a lift up and show them what they can achieve by themselves... Who knows, maybe tomorrow they will be leaving my group and joining a professional group... Because there is one thing that is quite clear to us; our role is to collect everybody that is playing with a ball on the streets and set them on the road to joining a professional team.* [64]

*Cs3* thinks her personal profile is similar to that of a large number of young women at *Cruzeiro*. Although still in her mid-thirties, she is already a grandmother and the head of a family of five children. She defined herself as *'a militant of the popular movement'*, with no political party affiliation.

*(...) I am not affiliated to any political party and I don't intend to be. I am a militant of the popular movement, so that I don't have owners... Besides, there are some things that if you don't agree... it is*

[61] Op. Cit. (59)
[62] Op. Cit. (60)
[63] FEBEM is the state national social services institution in charge of caring for homeless and street children. It is organised as a network of state care homes within the major capitals of the Brazilian states and, they are usually run by the state governments.
[64] Op. Cit. (60)

*better if you don't have a boss to say how you must think, you know... This is the reputation that I have here at Cruzeiro.*[65]

She said that her militant praxis, within the popular movement, started in the mid-80s and centred on reorganising the community associations through a network of *'Christian-based communities'*,[66] within the *União das Vilas* movement. However, *Cs3* explains that she became a community leader much later in the mid-90s. She sees herself as a self-made community leader.

*(...) - AMOVICS was created in 1979 and started from a matchbox, but we already knew what we wanted to do. I had my first son here at Cruzeiro in 79, when I was still a child here ...a child and mother at the same time, here inside Cruzeiro... So, what did I see? I brought up my children here at the state nursery of the FEBEM South Zone down the hill. This meant that everyday I had to walk through the whole vila to get down there. I got involved with the popular movement and the work that was being carried out with the local children, because this work started down there and up here at the same time; everybody from the hill was doing something... trying to change something...*

*And, since that time, we have started to get ourselves mobilised inside Cruzeiro, whenever we knew what we could get... And, it is still like that ... You know, we are sprouting up here... we'll get the results later... Today is still like that...*

*I always believed that I have a lot to learn... so whenever any issue is being discussed, I try to pay a lot of attention and listen, you know... This is because I believe we can learn something from everything, whether to do something or not ... And, from that time on, I started to fulfil my dream, which was to have a 'Learning Centre' for the children of Cruzeiro here, up on the hill.*[67]

*Cs3*, like *Cs4*, states that her willingness to do community work is based on her own personal experience. She says that she got more closely involved with AMOVICS through her own work in caring for the Cruzeiro children. They both agreed that the main problem of Cruzeiro today is the high level of unemployment, since the basic questions of housing, sanitation and primary-school education are being dealt with through the Participatory Budget process. They think that combating unemployment in the *vila* implies not just taking care of the children and teenagers, but also helping young adults get proper jobs. Their election campaign in 1998 which led to their victory at AMOVICS centred on designing a number of projects for obtaining the

[65] Translated from an open interview with Cs3 on 08/01/1999, AMOVICS, Vila Cruzeiro do Sul, Porto Alegre, Brazil.
[66] See Chapter 4: sub-section 4.3.1
[67] Op. Cit. (65)

financial resources needed to fulfil their dream – the creation of a community educational programme for children, teenagers and young adults.

*Cs3* describes the history of the association and claims that the period from the mid 80s to the early 90s was very difficult for the community organisation. This was due to the clientelistic social policies adopted by the government (at national, State and municipal levels) which had a corrupting effect on local organisational practices. Most of the AMOVICS leaders were co-opted into taking part by populist political parties and got involved with clientelistic practices, such as the *'ticket do leite'* [68] program, which only used the association for politically opportunist purposes. As a result, the local people started to identify the association with clientelist politics and corruption and, by the early 90s, AMOVICS was failing the community and, indeed, had become discredited and fallen into bankruptcy. *Cs3* says that it has been hard work to get the association back on the right track again:

*(...) – The problem was that, after these bad administrations, the association suffered serious financial problems and was cut off from any kind of state agreement that might provide financial support.*
*So the people that joined were fine, but they had this problem... either to pay back all the debts that the previous administrations had left, or let them default... And, the amount was very large and besides, they were revenues from the federal government. So what happened?*
*The community got help from outside, from an international non-governmental organisation working in association with a local cultural organisation, made up of a group of plastic artists willing to carry out voluntary social work at Cruzeiro. And, that was exactly what we had always wanted. Moreover, I was also more prepared to do a political and administrative job within the association at that time.*[69]

*Cs3* states that the work of this group fulfilled her dream of building a *'learning centre'* and of getting a *'virtual office'* for Vila Cruzeiro. They supplied the financial resources needed to get the partnership project started, as well as the human resources, through the work of more than fifteen outside volunteers and in this way helped to re-build the local community's confidence in the association and put the necessary material infrastructure into place.

[68] *Milk Ticket* was a federal program for the free distribution of milk to starving families within the shantytowns all over the country in the early 80s.
[69] Op. Cit. (65)

*Cs3* says she joined the AMOVICS administration group at this time, when she was feeling more politically prepared for the job, after having several years' experience as a militant, a representative of the popular movement within the municipal participatory structure (*popular councils*) of the Popular Administration.

*(...) - When the new administration started in 95, I joined as second financial secretary ... Later in 97 or 96, when we assumed power, the association was still in the red. But I had already come to realise that the only way out was for us to 'clean up the house' by ourselves...I was already a member of the 'Conselho Tutelar',[70] and was also taking part in the 'Conselho dos Direitos'[71]...So, I already knew about the rights of children and teenagers, what they had and didn't have, and what was possible for them to do..., in terms of educational work...You know, I had already walked along this path, so I already knew which way to go...But, the first thing to do was to clean up the house, sort out the financial debts and make the association active again.*[72]

*Cs3* stresses that as a result of her previous political experience, inside the municipal participatory structure, she also learned how to *'work out schemes'* to secure financial resources. These are available from a range of government institutions, which support social work within the shanty towns, especially care programs for children and teenagers.

*(...) - I've learned how to sit down and to write down what I wanted to do, what my objective was...You know, I want to learn...And I asked for help wherever I could get it, from the university staff...I asked them - how should I write this in such an item? And they said - like this, like this...Because I speak the 'popular' language... So, I had to ask people to help me change things, I said to them - help me to put this in the right technical language here...*[73]

With regard to partnerships and agreements between the association and the municipality, *Cs3* also makes clear how the interrelation between the re-organisation of the work inside the association and the participatory policy of the Popular Administration has moved away from the traditional clientelist style of running the city.

[70] Tutor Council organised by the Municipal Administration around the issue of the street kids in Porto Alegre.
[71] *'Conselho Municipal dos Direitos da Criança e do Adolescente'* (Municipal Council for the Rights of Children and Teenagers).
[72] Op. Cit. (65)
[73] Op. Cit. (65)

*(...) - Today an agreement with the municipal administration, even for ten cents... For ten cents, you have to fill in an application form and to explain how you spent it later... And, everything is like this... you have ten days to make an application...When the agreement receives the green light, you have fifteen days to spend the money and five to explain how you actually spent it. If you don't explain how you spent this first amount, you don't get the second. So if there are fifteen thousand 'reais' to obtain from an agreement, you will be allotted an amount depending on the plan you made. And, that is the right way of doing things...It is essential to have organisation and crystal-clear rules.*[74]

*Cs3* explains that it was through this process that she learned how to *'do projects'* and to write down *'new ideas'*, and in this way the community association started a new phase of administration. They managed to get financial support from many different sources, both municipal social programmes and established local, national and international partnerships. This was the case with the *'Solidarity Community'* and the federal government, by means of which they managed to get a *'Computer Lab'* installed in the association, through a wider inter-institutional agreement which also included PROCEMPA.

AMOVICS was able to carry out the first experience of running a vocational course on basic computation skills for a group of 25 teenagers (boys and girls aged 13-18) at Vila Cruzeiro. *Cs3* maintains that it was the first experience of its kind within a shantytown in Porto Alegre, run by a community association. She mentioned that there was a second experience in operation at Morro da Cruz, although this was connected with the Christian-based communities' work.

This was only one of many *schemes* which were being tried out in 1998. They ranged from vocational courses (from basic computation to sewing baby clothes), to a number of organised cultural activities being held at AMOVICS (e.g. boy's football championships, girls' dancing groups, samba school rehearsals for the carnival parade, *'capoeira'* dancing, percussion groups, balls etc.).

*(...) It happened. Was it difficult? No, it wasn't. All that was needed was to sit down and write down everything we believed we could do. We know which path to follow, but we still have lots of things to do here... The vocational courses are no longer my main concern, rather it is to get these young people employed or to create new jobs here.*

[74] Op. Cit. (65)

*We have already drawn up a plan to do this, which is to set up a 'Women's Co-operative'. But this time we believe that if it is going to be a lasting and autonomous program, it should be linked to another kind of community organisation, a proper 'co-operative', which is separate from the association, although it has its support.* [75]

*Cs3* agrees with *Cs4* in believing that there is still a close tie between the people involved in running the association and the community work they are able to carry out. Although they have created the material conditions for running a permanent community learning program, they are not sure that the next AMOVICS' administration will follow the same path. This particularly applies to vocational courses and, the use of the computer lab to create a *'virtual office'*.

At the time of the interviews, no community courses were being run; however I managed to have a brief chat with two students in the *Computer Lab*, at AMOVICS.[76] It became clear from this observation that the cognitive approach was not the same as that which is being adopted within the municipal system of education, as described in the interview with *Cs2*. The main differences concern the level of *autonomy* allowed to the students and, the level of *interaction* they were able to achieve within the prevailing local conditions of Internet access.

*Cs3* stated that this experiment was just in its first stages and they had had to face a lot of difficulties before they were able to overcome material and social infrastructure problems and get it starting. She was not pleased with the results obtained in the first year, but was prepared to make necessary adjustments for the term that followed. This would imply advocating a new approach to the learning methods and a more extensive use of the computer lab, together with the all the learning activities carried out by the association. The purpose would be to create the right conditions for the creation of a *'virtual office'*. Before they could move forward, they had first to win the community association election in the local political struggle.

[75] Op. Cit. (65)
[76] See Box 3 in Annex 5 for a summary of this informal conversation to illustrate how limited the experience at Vila Cruzeiro is and an illustration of AMOVICS' computer Lab at Vila Cruzeiro.

## 6.3 Informational Space Dimension

The informational space dimension is in step with our methodological approach in that it seeks to examine the main characteristics of institutional digital environments and their impact on the participatory practices of the Popular Administration in Porto Alegre. These characteristics are concerned with the interrelationship between the virtual and real spaces that constitute the spatial information dimension. The investigation into the social relationships within this dimension centres on group power relations.

This starts out by revealing the data arising from the spatial information dimension, which derived from the investigation of the municipal administration context that supports the development of informational space. This first stage of investigation comprehended the development of open interviews with the group of nine key informants and semi-structure observations of digital infrastructure carried out in the different sites where the interviews took place (as described in the previous section).

There follows a discussion of the collected data insofar as it applies to power relationships within the institutional *cyberspace* of Porto Alegre. When analysing the power relationships, a contrast is made between the different approaches adopted in the use of IT i.e. the conceptual positions of the subjects and the actual practices being developed by each municipal organisation. This contrast applies to the different levels of *cyberspace* development in the separate *sub-units of analysis* (*SU1*, *SU2* and *SU3*) and their link to the main policies embodied in the three different *units of analysis* (*P1*, *P2* and *P3*). The particular characteristics of cyberspace in each *sub-units of analysis* are further examined in the second part of the empirical investigation in Chapter 7.

### 6.3.1 Spatial information dimension

The evidence arising from our previous discussion about the contextual dimensions of urban governance suggests that the organisation of informational space in the municipal administration of Porto Alegre has had to face two major constraints. The first is to do with the management of informational space within the municipal administrative structure which is centred on the role of the Municipal Company of

Information Processing (*PROCEMPA*) and will be considered in greater detail in the analysis of group power relationships later on. The second focuses on the local production of spatial information and a discussion of this will now follow and will be in line with our methodological typology that distinguishes two kinds of *place/space* relations: *cspace/cyberspace* and *cyberplace*.

**Cspace/cyberspace: space representation and open access**

Our discussion of the findings from the interviews with the key informants revealed the fact that there are contradictory aspects of space representation and open access to digital information within the information management process (*P1*), at a municipal level. These aspects are linked to typical features of municipal *cspace* and the transitional phase towards the constitution of institutional *cyberspace*. Although *Po1* claims that a large *cspace* has already been constituted within the municipal administration through the widespread use of personal computers for professional and routine activities, the positions of *Po2* and *Po4* are diametrically opposed to his view. *Po2* insists that there is an uneven distribution of personal computers among the different Municipal Secretariats, and lays stress on the limitations of *cspace* at SMAM, where the *Environmental Atlas* and the environmental management system have been developed. *Po4*, on the other hand, believes that people are not accustomed to using personal computers to carry out the routine activities of the Participatory Budget Process (*P3*) at *CRC*. In fact, *Po4's* argument is supported by *Po1*, when he states that importance should be attached to the role of the professional systems that PROCEMPA has developed for administrative management so that it can meet the requirements of the Participatory Budget process. This means that it provides back-up for the internal administrative work of the financial management at GAPLAN/CRC, despite the fact that there is no easy-to-use interfaces designed for non-professional users within the participatory practices.

What is clear from the contrasting nature of *Po3, Po5* and *Cs1's* statements (with regard to *P2*), is that there is also a major discrepancy between the required paradigmatic shift towards a bottom-up model of urban planning practices and the actual planning measures embedded in the new master plan *(2nd PDDUA)* to control the city's development. This means that the new planning model is more concerned

with the spatial representation of the *'ideal'* city for professional uses, rather than promoting the technical support for innovative participatory practices (i.e. being a means of supporting the analysis and evaluation of the city's social/ spatial conflicts and contradictions), and thus is in line with the political model of *'direct democracy'*. This also reflects the dichotomy of the local planning culture which is polarised between two extreme concepts of the city: the *regular city* (the formal city, the *desired city* brought about in compliance with the regulations of urban law) and the *irregular city* (the informal city, the *undesired city* which comes about outside urban law, as a result of a process of social exclusion). Consequently, while the *regular city* has an administrative spatial representation model that has been translated into institutional *cspace,* the *irregular city* has no blueprint for its mode of development. In fact, in the case of the *irregular city*, this space is being formed by means of a learning process that gives greater priority to *'autonomous'* social political relationships than *'heteronomous'* social spatial relations, (which is in line with the model of direct public participation of the Popular Administration, described by *Po5)*.

Spatial information, when embedded in institutional *cspace*, can be regarded from a traditional technocratic approach which is used for the spatial representation of the *regular city*, and is mostly drawn from geographical information, by means of digital maps and associated data banks systems. Thus in the last few years, GIS technology has provided municipalities with a choice for the construction of the institutional *cspace* model of the *regular city*. Yet *Po1* recognises that the use of GIS technology is still being incorporated by the local informational culture, both among PROCEMPA's technical staff and the Municipal Secretariats (particularly SPM, which is in charge of the design and management of the new master plan).

*Po1* claims that most of the Secretariats have been expanding their *cspace* by following a similar technological approach since 1996, when PROCEMPA launched *PortoGeo* (the GIS version of the digital map of Porto Alegre) and officially opened up access to the technology for municipal organisations and the public in general. However, the geographical information generated by the different organisations has not been wholly systematised into an integrated network. This has meant there have been significant difficulties in the internal exchange of digital spatial information and the production of reliable information leading to the expansion of institutional

*cyberspace*. In addition, *Pol* states that the company is developing a better easy-to-use interface for municipal GIS applications, in order to improve its use throughout the municipal organisations. This should allow more friendly applications for professional uses within the institutional *cyberspace* in the near future.

There has been a lack of any substantial or systematised production of digital spatial information within institutional *cspace* and a shortage of available local resources. *Pol's* strategy has been to spread IT among the municipal organisations with the aim of stimulating and co-ordinating the design of municipal *cyberspace*. This process has consisted of three distinct but interrelated steps. The first has involved the setting up under experimental conditions, of the *Virtual City Hall* web site. This relies to a great extent on re-designing administrative activities and setting up on-line public services, to ensure open access to a certain amount of public information and services. The second and parallel step has been to re-design technocratic working practices to blend with the new and decentralised electronic procedures (bottom-up, client-server model), within the municipal administrative structures. A third step has been to encourage cooperative working practices and direct participation of the users (i.e. the body of technical employees) on both sides of the process - production and consumption of digital information. This implies improving institutional *cspace*, both in terms of the reliability of the professional content and the creation of easy-to-use interfaces for the existing non-spatial information systems, to allow a free exchange of information between the Secretariats. Moreover, it will enable cyberspatial information to be released for professional use inside the municipal structures.

The shortage of space representation and lack of open access to already available non-spatial information, within the municipal *cspace,* represent a major challenge to the construction and expansion of institutional *cyberspace.* Yet the absence of any systematic model for participatory practices within the planning process as a whole, may explain why easy-to-use interfaces have not been developed. What it implies is that the way of translating the technical and professional content of the information systems for non-professional users (i.e. citizens in general and the popular movement organisation in particular), is still an open question within institutional *cspace*.

The political stance adopted by *Po1* and *Po5* make clear that there is a willingness to counterbalance the global dominance of the networking logic in cyberspatial development and ensure that the disempowered are granted open access to it. This willingness has been strengthened by the introduction of partnership experiments in the use of IT for social learning processes within local civil society organisations. These constitute the initial stages of a *networking of insurgent learning practices* at both levels, within the municipal school system and academic organisations (as explained by *Cs2*) and grassrooted community organisations (in line with the experiences of *Cs3* and *Cs4*).

**Cyberplace: universal service and free access**

The discussion above about what material infrastructure was available within the context of urban governance, made clear that the independence of the local government suffered financial constraints when attempting to meet the demand that institutional *cyberplaces* be set up as universal services together with free access to *cyberspace*. In view of the statements made by the key informants, there are two challenges which have to be faced regarding the material infrastructure needed for the expansion of institutional *cyberplaces*.

First, there is the need to put into place a local telecommunications infrastructure in Porto Alegre, which, *Po1* believes can only be done through external financial funding. This point arises from the material conditions required for the network connection to create the local environment that can ensure a universal service, either locally or globally. It should be stressed that there is already a shortfall in the municipal funds needed to meet the requirements of the basic public services, even though the general financial situation of the municipality is sound. This has been clearly demonstrated during the last ten years which has witnessed the effects of Participatory Budget practices for coping with the public demand for basic sanitation, an urban infrastructure, housing and public services, all of which are required by citizens dwelling within the *irregular city*. Although a lot has been achieved in terms of public investment in these deprived urban areas, particularly with regard to basic sanitation, street paving and public transport, (as is borne out by *Cs3 and Cs4*'s accounts), there is still much to be done. This is due to the huge social gap that is

apparent in the social exclusion and urban segregation, which forms a pattern of duality throughout the urbanisation process of Brazilian society.

The Popular Administration's strategy for the expansion of *cyberplace* is to oppose the uneven distribution of telecommunications infrastructure in the city, through the establishment of partnership schemes. These include both private agencies and other governmental organisations (State or Federal) and, in *Po1*'s view, have paved the way for an escape from the financial straitjacket of limited public capital. He claims that the present phase which is witnessing the construction of the local IT backbone, is a result of a large partnership scheme (*Tele Porto Alegre)*. This is part of a wider municipal programme that, since 1995, has been striving to encourage the development of the IT industry in the city (*Porto Alegre Technopoles*).[77]

The second major challenge is how to guarantee *cyberspace* infrastructure as universal service, and involves ensuring that citizens have free access to institutional *cyberspace* or, at least addresses the question of affordability. Despite the fact that the Popular Administration gives priority to a social inclusive policy, *Po1* maintains that the financial resources are far too limited to meet the municipal administration's internal technological requirements, let alone the demands of the *'popular movement'*. Yet throughout the programme of administrative decentralisation, an effort has been made to set up small-scale digital infrastructure within the Regional Administrative Centres (*CARs*) to make sure they are connected to institutional network and will allow free access to the local communities in the near future.

*Po1* follows a similar path of partnership strategies when he argues that new practices have been tried out in the search for alternative solutions to the problem of expanding the digital infrastructure. These strategies range from academic partnership projects (as in the case of the Municipal School System and the Federal University) to schemes with non-governmental organisations and grassrooted community associations (as in the case of *Vila Cruzeiro do Sul*). In both cases, experience has so far been limited, but they suggest a possible methodological approach for drawing up long-term policies, which are aimed at the innovative practices of IT and used to empower the disempowered through wide social learning processes.

[77] See Chapter 4: sub-section 4.3.2.

### 6.3.2 Group power relations within institutional cyberspace

The previous analysis of the social and political conditioning, in the area of urban governance, enabled us to identify the different attitudes of the key informants towards the social use of IT and the way institutional cyberspace is formed in Porto Alegre. These diverging perspectives have a bearing on the power struggles in three parallel processes, (*P1*, *P2* and *P3)*, all of which are connected with the development of cyberspace. An analysis of this social conditioning revealed that there was a gulf between the two extreme positions assumed by these subjects, which had nothing to do with their role in the municipal structure. These positions include: (a) subjects with very low computer skills or computer literacy levels (*Po4 and Po5*) (b) computer literate subjects with very high (*Po1*) or medium levels of computer skills (*Po2 and Po3*). On the other hand, an examination of the political conditioning reveals a comparable range of positions. These also vary between two extreme perspectives: (a) subjects who are highly receptive to the social uses of IT in the municipal policy (*Po1* and *Po5*) (b) subjects that are sceptical about the social relevance of the IT municipal policy (*Po4*).

In view of the fact that the key informants occupied leading political positions in the local government, it is reasonable to suppose that the different technocratic groups would be made up of a similar range of technical and political perspectives within each process (*P1, P2* and *P3*). This would then be translated into municipal cyberspace in the case of each municipal organisation. At the time this research fieldwork was being carried out, institutional cyberspace was still in its experimental stages. Thus, it is premature to make an evaluation of group power relationships on the basis of an examination of their social and spatial representation in the *City Hall* web site. Instead of this, our methodological approach has pursued an investigation into how subjects from different departments in the municipal structure, have been appropriating the new technology to assist them in their professional and routine administrative tasks. This leads us to the next stage of our investigation which comprises an analysis of the interaction of the subjects with their different digital environments, both within institutional *cspace* and *cyberspace.* This is discussed in the next chapter, in the course of examining the analytical dimension that defines inter-personal social relations within the institutional digital environments.

At this point, it should be said that the evidence that has emerged from the interviews with the nine key informants, has demonstrated that accessibility played a central role in the question of urban social and spatial information within the participatory project of the Popular Administration. This is an outcome of the strategy for the development of institutional cyberspace and is in line with the participatory perspective, that opposes the traditional corporate logic of the centralised technocratic municipal administration.

The major challenge, when converting these traditional corporate technocratic power relations into more professional cooperative practices, is how to effect a paradigmatic shift in the interrelation between political power and access to information within the municipal structure. PROCEMPA thus has a dual political role within this structure in bringing about a social use of IT for the development of social learning. As the Municipal IT Company is responsible for providing technical support for the whole administration, it has to design new networking structures to assist in the decentralisation of these administrative structures. The company is also responsible for spreading open access to municipal information in the municipal administration, while also attempting to set up institutional IT infrastructure as a universal public service for citizens at large and the disempowered in particular.

### 6.4 Research Findings related to the Contextual Dimensions

The evidence gathered during the first phase of the hands-on fieldwork allowed us to address our *how* research question. It focused on the organisation of the group social relations that make up informational space in the urban governance of the Popular Administration. This evidence has been examined with a view to understanding the interrelation between two contextual dimensions and the constraints they impose on three parallel processes - information management (*P1*), urban planning (*P2*) and the participatory budget (*P3*), in the constitution of institutional *cyberspace* in Porto Alegre.

The working hypotheses (which were formulated before the fieldwork was embarked on) emerge from our theoretical framework and take into account each *unit of analysis* (*P1, P2* and *P3*). Our conceptual position is one that regards the development of the

informational society as a global phenomenon and is linked to the dominance of the networking logic. It recognises that, being a dominant logic, it also allows comparable manifestations of different local, social and cultural expressions and levels of networking connections, which embrace the full range of the global network of cities or nodes. Our central theoretical hypothesis is that the dual nature of the social relations, brought about by the networking logic of cyberspatial development (within peripheral nodes of the global network such as Porto Alegre), might aggravate the trend to social exclusion by reproducing the dominant cultural codes of the technological elites in cyberspace. It has also been stressed that local conditions and the peculiarities of different urban governance, might create a chance to build up social relations that can act in opposition to the duality of the global networking logic at a local level.

Before embarking on the fieldwork, we hypothesised that the social actors from the technocratic and political elites would comprise the dominant groups of producers and consumers of cyberspatial technology in each process (*P1, P2* and *P3*). This meant that they would reproduce the traditional technocratic power relations of control over the access and exchange of municipal information from *cspace* into *cyberspace*. Some variations were envisaged between the different groups of social actors involved in each process: *P1* would represent the main groups of *cyberspace* producers, *P2* the main groups of *cspace* producers and active consumers of cyberspatial technology and, *P3* the passive groups of consumers of *cspace* and *cyberspace.*[78]

The empirical evidence gathered in the first part of our research investigation revealed elements in each *unit of analysis* that bear out the dominance of the technological elites in the consumption and production of information in the institutional cyberspace of Porto Alegre. At present, the dominance of the traditional technocratic elites in the production and consumption of information prevails in the municipal virtual environments of all the *units of analysis* (*P1, P2 and P3),* a fact which is borne out by the key informants from the municipal organisations (*Po1, Po2, Po3* and *Po4*).

There is also evidence that conflicts with our working hypotheses with regard to the contextual dimensions and make-up of group power relations in each unit of analysis.

[78] See Chapter 5: sub-section 5.2.3.

This is connected with the rise of the *insurgent movement* of *grassrooted community networking* that opposes the dominance of the technological elites which is embedded in the global networking process, and challenges the traditional cultural codes of the local technological elites.

This movement of *insurgency* against the dominant networking logic has been caused by intervention on the part of the local government, and encouraged by political pressure from the organisations that make up the popular movement. It involves attempting to translate into *cyberspace,* the political forces that have guaranteed *direct participation* in all spheres of the Popular Administration in Porto Alegre. As a result, the municipal IT policy can be regarded as being dependant on the development of partnership programmes that include organisations from the civil society and the popular movement.

The translation of the *direct participation* political model of the Popular Administration into *cyberspace* is clearly still in its early stages and its effect on the different *units of analysis* has not yet been clearly defined. At the same time, it has been subjected to a number of contextual constraints - from material to socio - infrastructure. Yet, there is a fundamental challenge, which applies to all the *units of analysis*, and this is the fact that the cultural paradigmatic shift to cyberspace technology entails the concepts of *citizenship* and *social inclusion*, which are central to the model of participatory practices. This cultural challenge is the focus in the next chapter.

# Chapter 7

## The Case Study: Part Two - Analytical Dimensions

### 7.1. Introduction

This Chapter provides the results of the second part of our empirical investigation. The data that emerged from the 21 interviews with the selected *research subjects* is examined and arranged in accordance with the methodological categories and site *of analysis* displayed in Table 5.4.[1] The *semi-structured interviews* and *structured observations* were carried out in each of the 9 sites *of analysis* (PROCEMPA, SPM, SMAM, CRC and 5 CARs).

The methodological means employed in the *semi-structured interviews*[2] were adapted to each sub-unit of analysis (*SU1*, *SU2* and *SU3*), and took cognizance of the results of the first phase of the investigation. The analysis of the informational space dimension helped to clarify the early developmental stages of institutional *cspace/cyberspace* and the variations found in each unit of analysis (*P1*, *P2* and *P3*). It also took into account the need to carry out interviews under experimental conditions and with due regard for the different backgrounds of the subjects.

An attempt was made to conduct this research in full awareness of the various ways individuals reacted to digital environments and their willingness to interact with these tools. The interview procedure adopted a cognitive *clinical method* orientation (Brown & Dowling, 1998: p.78), which was based on three investigative principles:

(a) to find out the pattern of reasoning displayed by the subjects while they were interacting with the digital environments,

(b) to adapt the questions to the subject's backgrounds so that the underlying hypothesis of the interviews could be tested with different categories of subjects,

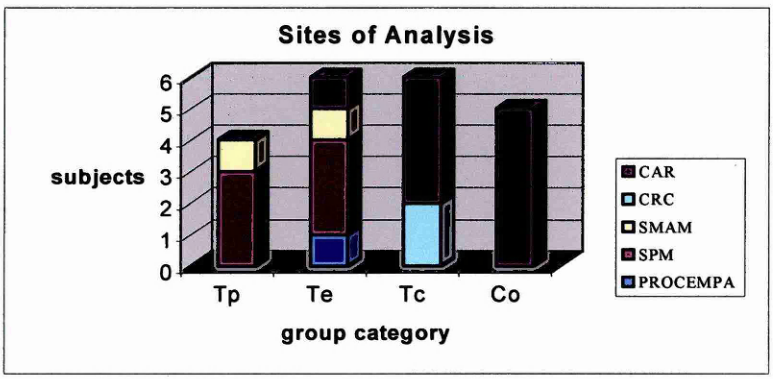
(c) to provoke the cognitive interactions of the subjects with regard to *meaning* (*what*), *explanation* (*how*) and *reason* (*why*).

[1] See Chapter 5: sub-section 5.4.1
[2] See Chapter 5: section 5.3.

The aim of this empirical strategy is to investigate the pattern of socio-cognitive interactions that characterise inter-personal social relations within municipal virtual environments. In the light of our theoretical propositions, we believe that this will serve to explain the role that IT might have in the social learning processes which form a part of the *insurgent participatory practices* being carried out by the Popular Administration in Porto Alegre. The experimental cases were designed to explore socio-cognitive aspects of informational social learning focusing on two analytical dimensions (*intellectual co-operation* and *social representation*), by observing a series of stimulated interactions between diverse categories of *subjects* (political administrators, technocrats and community leaders) and the *object* (institutional *cspace/cyberspace*).

The data collected in the first part of the semi-structured interviews enabled us to divide the subjects in 4 group categories (*Tp, Te, Tc* and *Co*)[3] considering 3 general parameters: (a) level of academic instruction, (b) gender and age (c) level of IT knowledge. Charts 7.1 to 7.5 provide a summary of these findings regarding each group category of subjects. It should be stressed that, in view of the fact that this investigation adopts a qualitative approach, the selected subjects in each separate group category were not considered to be statistical samples. On the contrary, the data correspond to the total number of subjects interviewed in each group category.

**Chart 7.1 - Subjects by group category and site of analysis**




The distribution of subjects by site of analysis suggests that all the *community leaders* (*Co*) that took part in the experiment were involved in the work being carried out by the Regional Administrative Centres (*CARs*), while with the exception of the

Coordination of Community Relations (*CRC*), all the technocrats had some relation with the municipal bodies. This means that *technocrats* (*Te*) and *technocrats/political administrator* (*Tp*) are linked to the traditional municipal organisation (*PROCEMPA, SPM* and *SMAM*) in contrast with *political administrators/community leaders* (*Tc*) and *community leaders* (*Co*) who are belong to the structure designed to run the participatory process (*CRC* and *CAR*). This reinforces the point that has emerged from previous findings, which is that there is a clear dichotomy between traditional and participatory urban policies apparent in the *unit of analysis* (*P1*, *P2* and *P3*).

**Chart 7.2 - Subjects by age and group category**

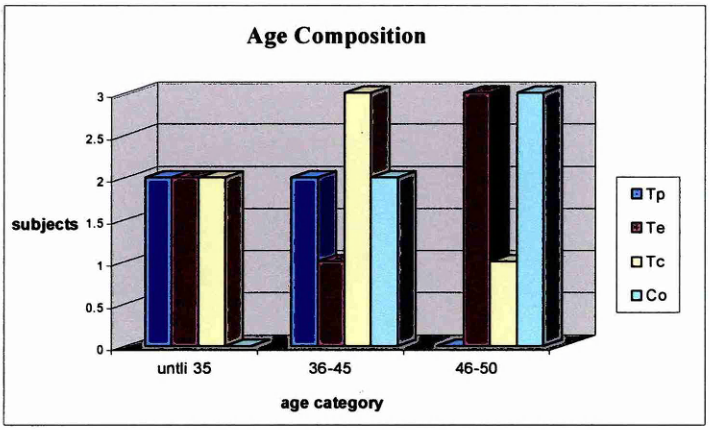
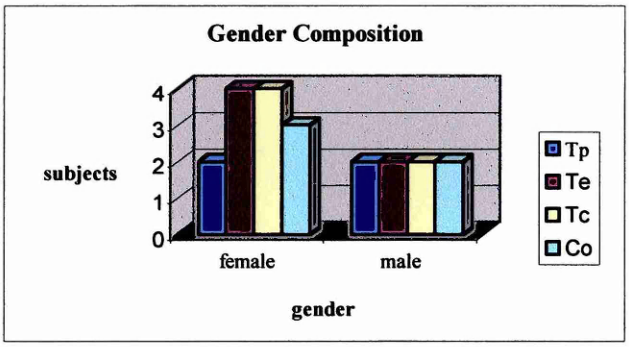



**Chart 7.3 - Subjects by gender and group category**




Charts 7.2 and 7.3 show the age and gender of each group category. The group category *community leader* (*Tc/Co*) is dominant in the oldest age category (45-50 years), where there is a small dominance of females. This indicator is consistent with the opinions of the interviewees that the participatory practices are time-consuming

[3] See Chapter 5: sub-section 5.4.1.

activities and people do not have enough free time to get involved in voluntary community activities of this kind. There is also a small dominance of female subjects in the technocratic group.

Chart 7.4 classifies the academic level of the subjects into group categories and Chart 7.5 displays the extent of their IT understanding, which is divided into 4 levels. This division was the outcome of observations and inquiries made in the course of the interviews when the subjects were interacting with their digital environments. The levels are:

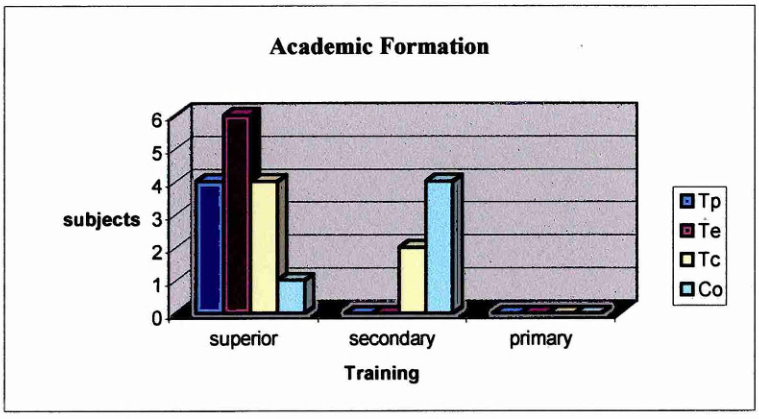
(a) *expert* - subjects who are producers and consumers of IT information on a daily and specialist basis

(b) *medium* - subjects who are consumers and will eventually be producers of IT information on a daily and professional basis

(c) *low* - subjects who will eventually be consumers of IT information on a non - professional basis

(d) *computer illiterate* - subjects who are not consumers of IT information either through a lack of access or a lack of interest.

**Chart 7.4 - Subjects' academic formation by group category**

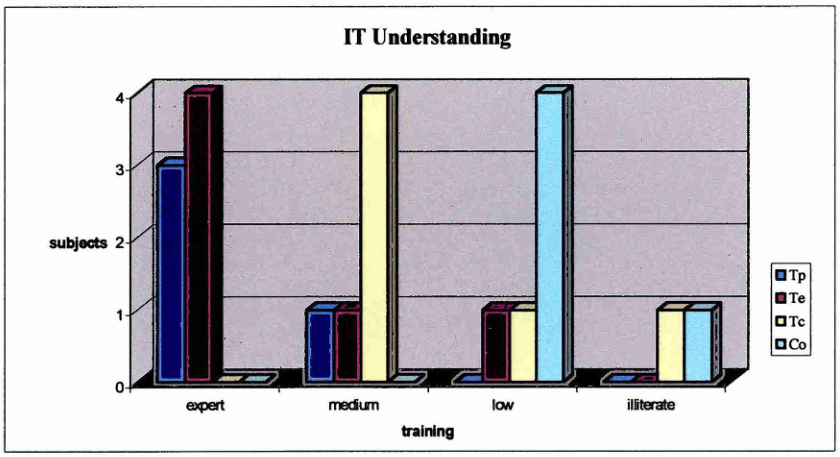



The data displayed in Chart 7.4 shows that there is an absolute dominance on the part of subjects with *superior* training among the group categories *Te* and *Tp*; this is in line with the professional qualifications of these group categories within the municipal organisations where they are employed. The data also demonstrates that the subjects who are involved in the participatory practices (*Te* and *Co*) display both *secondary* and *superior* academic training, while *secondary* education level is more common among

the *community leaders,* which is to some extent consistent with their socio-economic origins.

As regards levels of IT understanding, the data displayed in Chart 7.5 suggests the existence of a similar pattern of distribution among subjects from *Te, Tc* and *Co* group categories that is related to decreasing levels of IT understanding which affect *experts*, *medium, low* and *illiterate*, respectively. The data is in line with the general findings derived from the key informants, which highlights the fact that there is a prevailing dominance of technological elites within informational space. However, it should be noted that, contrary to what we originally hypothesised, there is also a high incidence of medium levels of IT understanding among *Tc* subjects, a fact which suggests there is a pattern of *insurgency* in inter-individual social relations.

**Chart 7.5 - Subjects IT level of understanding by group category**




Our methodological approach is drawn on to examine in detail the outcomes of the 21 interviews carried out on the 9 sites of analysis. The purpose of this is to find out the interrelationship that exists between each analytical dimension and the different category groups which are linked to each sub-unit of analysis.[4] After this, there was a discussion of the research findings together with the socio-cognitive dimensions of the analysis.

[4] See Chapter 5: Fig. 5.1.

## 7.2 Informational Social Learning

The aim of the *informational social learning* dimension is to seek answers to our *what* and *why* research questions and thus explain the findings that emerged from the first stage of this investigation. Our earlier analysis of the contextual dimension found evidence of an embryonic stage of cyberspatial development in the Popular Administration but an absence of any systematic model for incorporating participatory practices within institutional *cspace/cyberspace*.

The conceptualisation of the *informational social learning* analytical dimension[5] guides our analysis of participatory practices within the institutional informational space. Two analytical categories make up this dimension (a) *intellectual co-operation* - this is related to inter-personal social relations and attempts to find out new ways of knowing (b) *social representation* - this is concerned with group social relations in decision-making and consensus building and seeks to overcome socio-cognitive conflicts (and find new ways of acting collectively).

The aim of the second stage of this experimental investigation is to determine whether or not social spatial interactions within the institutional digital environments can enable the development of new planning knowledge and thus empower the participatory practices of the Popular Administration.

An essential part of our analysis of the conditions required for intellectual co-operation within digital environments is the concept of building a *common scale of intellectual values.* This primarily depends on creating a *common language.* In our opinion, having social learning processes in the digital environment might create the right conditions for achieving an *equilibrium of intellectual exchange* in participatory practices. The active exchange of planning information and knowledge is also of great importance when regarding the question of both socio-cognitive conflict and consensus within group relations, and collective decision-making within the Popular Administration *direct democracy* practices.

[5] See Chapter 3:section 3.3.

The municipal digital environments selected as the digital *objects* for the experiment include: (a) the digital map of Porto Alegre, *PortoGeo,* which is available through a GIS desktop application (b) the *Virtual City Hall* of Porto Alegre, which was accessible on the WWW, at the time the field work was carried out.[6]

There will now follow an examination of the way the subjects interact in these digital environments; this will be done by dividing them into different group categories and applying two analytical socio-cognitive concepts to guide the experimental interview - a *common language* and *common informational data.* These concepts fulfil the original socio-cognitive conditions which are required to achieve *intellectual co-operation* and *consensus.*[7] As discussed in the first part of the investigation, the uses of IT in the Popular Administration have tended to lay emphasis on the communication of information. This has led us to focus on the institutional uses of IT to form a common language and common informational data between subjects both from inside municipal organisations and from community organisations.

### 7.2.1 Subjects from organisations of the municipal government

The range of 16 selected subjects comprises local government employees who are working on all the *sites of analysis* and includes the three categories of technocrats (*Te, Tp* and *Tc*), as shown in Chart 7.1.

#### *Te* subjects

The 6 subjects from the *Te* group category vary in the way they interact within the digital environment; this can be attributed to the way they are conditioned by the context and infrastructure of IT in their work-place, their diverse academic backgrounds and their professional experience. Table 7.1 displays the distribution of the subjects in this group category by sub-unit and site of analysis.

All the subjects display a higher academic level and subjects with an *expert* level in IT training (*Te1, Te2, Te5* and *Te6*) can be found in all the sub-units and sites of analysis

[6] See Chapter 5: sub-section 5.2.3.
[7] See Chapter 3: section 3.2.

regardless of the quality of the available digital infrastructure. SPM shows a variation in the IT training of selected subjects falling into three levels (*expert*, *medium* and *low*).

**Table 7.1 - Distribution of *Te* subjects by sub-unit/site of analysis and level of IT training**

| IT | SU1 | SU2 | | SU3 |
|---|---|---|---|---|
| train. | PROCEMPA | SPM | SMAM | CRC |
| expert | *Te1* | *Te2* | *Te5* | *Te6* |
| medium | | *Te3* | | |
| low | | *Te4* | | |

In accordance with the findings which emerged from the key informants' interviews, *SU1* displays the highest levels of established digital relations. *Te1* demonstrates an expert level of understanding as a professional producer and as a consumer of IT on a daily basis, that is in keeping with his position at PROCEMPA. He is an architect trained in GIS and computer-aided design (CAD) technology and a staff member of the technical body that is responsible for the production of the *PortoGeo* application. He has also taken part in the *Municipal Inter-Secretariats Committee* for the implementation of a new GIS for Porto Alegre (*SIG Poa* or *Geo Project*). PROCEMPA has the best IT infrastructure, among the municipal organisations, and the interview was carried out with the aid of the local machines in the *Te1* working environment.

During the interview, *Te1* operated the *PortoGeo* map features[8] to demonstrate the levels of information and attributes that were available.[9] He stressed that there were limitations in their application owing to problems they had been facing in constructing the GIS database. He stated a critical overview of the performance of the *Inter-Secretariat Executive Committee,* as a prelude to the implementation of the institutional GIS infrastructure (hardware, software, data and organisation, and training of personnel) within the Popular Administration as a whole.

[8] Including basic visualisation of the city's geographical and political boundaries, political administrative regions perimeters, district boundaries and street network.
[9] Made up of the basic database associated with the map's features, i.e., street names, size, etc.

*(...) - PROCEMPA has been developing GIS technology since 1989; the idea of creating the Inter-Secretariat Committee was that, SPM would co-ordinate the process of organising and training people for the implementation of a new instrument for city planning which would encompass all departments within the municipal government structure. PROCEMPA, on the other hand, would give its support to the implementation of GIS hardware and software infrastructure and the GIS database management, within the municipal government structure. In 1995 the Executive Committee was appointed by the Mayor, and included all the municipal Secretaries under the chairmanship of the Municipal Secretary of Planning. Since then, however, things have never got any further than being a blueprint...The process as a whole seems to have got stuck on the issue of finding the necessary financial resources for the institutional GIS infrastructure.*[10]

According to *Tel,* the *PortoGeo* application was launched as a strategy to get the process of spreading the GIS culture underway. The traditional systems of information management at PROCEMPA did not include digital geographical databases. All the geographical information management within the municipality is handled by SPM, in the Cartography Department, and it has been traditionally carried out by using manual drawing implements. During the last ten years, the increasing use of CAD and computer graphic have led to the introduction of digital cartographic information, but the system as a whole still largely relies on paper maps.

*(...) - Then the idea occurred to us that we could produce a simplified GIS map which was capable of digitizing the city manually. This was a 1:15,000 paper map, a scale suitable for urban planning purposes. We spent almost four years preparing this preliminary GIS database, which culminated in the production of the PortoGeo desktop application. The results were not what we had imagined at the beginning, but in the end it was the first step to getting things started.*[11]

*Tel* notes that the municipal strategy for spreading GIS culture more widely within the structure of the municipal secretariats has not been well defined so far. PROCEMPA's strategy has been to expand the GIS database by stretching the analytical capabilities of the system so that it can assist with the routine work of the different Secretariats, whenever required. Yet the essential need is still the question of converting traditional data into the GIS database.

[10] Translated from the semi-structured interview with Tel, on 10/11/98, PROCEMPA, Porto Alegre.
[11] Op. cit. (10)

*Tel* also says that he has been developing isolated GIS databases and applications for several projects in association with technicians from the various secretariats. These first experiments include:

(a) a regionalisation programme and the production of the GIS coverage encompassing the new regional division of the city proposed by SPM
(b) the GIS coverage encompassing the water supply network from DEMAE,
(c) the GIS coverage encompassing the network of the municipal health centres from SMS,
(d) the program of property regularisation and the production of specific GIS coverage for some irregular areas from DEMHAB.

His main concern is the absence of any structured routine work between the Secretariats to use this information for broad analytical purposes of urban planning with the result that there is a lack of any systematic procedure for exchanging information between them.

*Tel* stresses that the Secretariats are constrained in their exchange of geographical information, because of a lack of networking connections or an adequate institutional telecommunications infrastructure. However, he claims that they are developing the technological know-how in the new technology of distributed geographical information applications, by the use of maps and GIS data inside the Secretariats' Intranets.[12]

With regard to the Internet, *Tel* explains the experimental factors which influenced the initial attempts to build the Porto Alegre *City Hall* Web page, and thinks that the local government has to improve the telecommunications infrastructure in the city to get information flowing smoothly. This argument is consistent with the findings discussed earlier.

*SU2* embraces two separate situations with regard to digital infrastructure at SPM and SMAM. While SPM has got personal computers which are available for all the technical and administrative departments and even a small centre specialised in GIS technology, SMAM is suffering from the lack of any infrastructure for hardware and

[12] See *Box 4* in Annex 6 for a summary of *Tel*'s interview that illustrates the experimental situation and *Tel's* interaction within the PROCEMPA's Intranet.

software. GIS technology was available for SMAM only at the time that they were developing the *Environmental Atlas* through the partnership program with the Federal University.

*Te2* and *Te5* are both professionals who have received specialised training in GIS technology from the Federal University Graduate Programme, although they have different academic backgrounds (business administration and agronomy). They are working in different contexts and *Te2* has access to better digital infrastructure at SPM than *Te5* at SMAM. *Te2* is a staff member of the group responsible for the production of the GIS map for the development of the new master plan model, while *Te5* was a staff collaborator for the development of the *Environmental Atlas.*

When asked if they had ever operated *PortoGeo*, they both claimed that although they had seen the application before, so far they had not had access to the application in their working environment. Yet they both declared they would have no difficulty in finding out how it operated and *Te5* was willing to do so. In both cases, we carried out the interviews by using the *PortoGeo* application and it was installed in our own laptop for this purpose.[13] The interviewees stated that they knew the *City Hall* Web site page, but both were critical of the way PROCEMPA was handling the content and interface design of the experimental site development.

In her evaluation, *Te2* referred to two serious problems which had been experienced, after operating *PortoGeo* for a while during the experimental phase:

(a) the interface design - she considered that this was not an easy-to-use interface for non-specialists. She believed that the majority of SPM technical staff had had no previous experience of working with GIS technology and would be discouraged from doing so by the degree of difficulty posed by the interface.

(b) the weakness of the database (both spatial and non spatial data) - she noted that the digital map was not updated or accurate. As well as this, the scale 1:15 000 is not the most appropriate for most of the Municipal Secretariats' routine work, as they need a greater degree of geographical detail to suit the requirements of their databanks and traditional information systems.

[13] PROCEMPA has kindly allowed us to use the *PortoGeo* in this research and provided the software installation.

When asked if she believed *PortoGeo* would be an appropriate GIS interface to be used by people involved in the Participatory Budget process, she replied:

*(...) - I believe that what is needed is a much easier way to use the interface... something very direct..., something that says... if you wish to know this, click here... I believe it should be something which is very easy to access... like cash machines in the banks.*[14]

In summarising the main problems SPM had encountered in making GIS culture more widespread, *Te2* referred to the lack of a GIS infrastructure (hardware, software, data and personnel). She believed that priority should be given to hardware and software infrastructure to build up an accurate and useful GIS database. Only then could they expect to get people involved in a broad sense, and introduce a new design to the institutional working processes which was based on the uses of the technology.

*(...) - It is like when you learn to drive... you need a car. You must have a car otherwise you can't learn to drive. Once you have learned, that's it, you are ready. If you don't have the machine, if you don't have the conditions to input data and output the necessary information in an easy way..., it is impossible to get a GIS database set up and have an institutional GIS culture spread among the technical staff.*[15]

With regard to the *City Hall* web site, *Te2's* main criticism was aimed at the design of the SPM homepage and the way PROCEMPA had made the new master plan available to the Internet (as a zip file that had to be downloaded to access the law text). She said that SPM was producing its own hypertext for the new master plan, and that this included all aspects of the law, including the digital GIS maps designed for the spatial model of the new master plan. This new web page was under construction within the SPM Intranet and was expected to be accessible through the Internet as soon as PROCEMPA gave the green light in terms of infrastructure support.

Although *Te5* stated that it was the first time he had operated *PortoGeo* applications, he had no difficulties with interaction. After spending some time exploring the features available in the system, his appraisal was that a similar system would be very useful for his routine work at SMAM, so long as it was fed with more specific data. Examples of this were spatial data concerning municipal areas which required permanent environmental preservation, or areas of natural environmental interest,

[14] Translated from the semi-structured interview with Te2, in 11/12/98, SPM, Porto Alegre.

where there was the need to access the information that they get manually from paper maps, today.

*(...) - I think we are going to work in this direction, which means we need to consolidate the data we have already produced within the GIS database. For example, whenever GAPLAN has an inquiry connected with a building work project which the community requires in the Participatory Budget, such as the measurements of a street that is going to have gutters built, we have to do it manually relying on the measurements of paper maps. This is one kind of geographical information that could be disseminated by the Municipal GIS.*[16]

When asked if he believed *PortoGeo* would be an appropriate GIS interface to be used by people involved in the Participatory Budget process, he expressed the same view as *Te2.*

*(...) - The system would have to be open to direct queries... But I believe it could be done, so that the community could know about their streets, their district and region... Not only the location but also information from socio-economic databases... In this case we would have to discuss how to make the technology accessible for them... if it could be done through the Internet in a local office which would provide free public access... I believe this still has to be discussed by the municipal government organisations.*[17]

*Te5* believes that the *City Hall* web site is still in its embryonic stage of development and faces three serious problems:

(a) the information displayed is not regularly updated, particularly the Participatory Budget pages and the new master plan,
(b) content and usefulness of the available information,
(c) structure of the interface design that lacks connectivity and interactive features, apart from e-mail.

*Te5* also notes that SMAM production was not included in the web site, although they expected to have at least part of the *Environmental Atlas* available online in the near future, since it covers a huge amount of academic and scientific information about both the natural and built-up areas in Porto Alegre. He maintains that the experience of partnership and exchange of information which was witnessed during the process of

[15] Op. Cit.(14)
[16] Translated from the semi-structured interview with Te5, in 01/12/98, SMAM, Porto Alegre.
[17] Op. Cit. (16)

building the *Atlas,* was based on informal working relationships that have not, so far, been methodologically systematised into working routines.

The *CARs* are the organisational structures within *SU3* and consist of seven regional offices which are responsible for the implementation of the administrative decentralisation program and the community work to support the Participatory Budgetary process. Four of these centres have a small digital infrastructure already in place.[18] This comprises at least two personal computers connected to the Internet and one mainframe terminal to access the traditional municipal information systems managed by PROCEMPA. The PC machines are usually second or third generation and do not allow the use of additional digital media such as CD-ROM or DVD. Each centre has at least one colour print installed. During our interviews and visits to the four equipped CARs, we found out that, despite what *Po1* had stated, access to the traditional mainframe system of PROCEMPA was still the main source of institutional information for the work being carried out in the regional administrative centres.

*Te6* is our youngest subject and has very little previous experience as a municipal civil servant as he is still working for his academic degree in computer sciences. He is very enthusiastic about the work being carried out by the CAR staff and it is his first experience of local community work. He is the staff member in charge of the computer work at CAR, as well as assisting in the field activities which are taking place in the local communities of the region.

He says that so far he has been busy doing two kinds of computer jobs; the first consists of using basic digital publishing facilities and the second involves using the mainframe terminal to retrieve information from the traditional municipal system. This work includes the following activities:

(a) using computers (graphics and text) for designing and publishing the printed material required by the communities for their social and cultural activities (bulletins, local news and invitations to community activities)

(b) gathering municipal information about public services (street lighting, water supply, sewerage systems, etc.) and the Participatory Budget expenditure on civil

[18] See Chapter 5: Table 5.5.

construction (e.g. street paving, basic sanitation, housing), whenever required by the local communities or individual citizens.

*Te6* claims that, although they have Internet access and e-mail facilities, they are not using IT in a systematic way, either internally to exchange information within the municipal organisation of the central administration, or externally to support community work. The use of e-mail has not yet become established within the municipal institutions and the personnel still rely mainly on paper mail or telephone contacts for administrative communication. Their mode of conducting community work is based on face to face interaction with the local communities and their leaders, at meetings held in their own community association headquarters. Whenever necessary, they liaise with the municipal Secretariats to organise cultural programmes and activities which are supported by the Popular Administration (such as *MOVA*[19] and *SEJA*[20] among others); these are also organised locally within the different community sites in the region. *Te6* is optimistic in his view of the relationship CAR has with the local communities:

*(...) - I believe that we are also learning you know... and there is a method and procedure in this. I believe that the people come to us because they know they will get an answer to their questions and problems. We can get these answers from the other municipal organisations in charge of the public services and social programmes because we know both parties in the process, the local communities and the municipal administration... And in this way, it works pretty well ...*[21]

When asked about the *PortoGeo* application, *Te6* stated that he had never seen the system before and that he is not acquainted with GIS technology yet; however he is curious about the application and shows some skill in operating it. With regard to the *City Hall* web site, he says that he has had a quick look at it but is not familiar with the contents of the institutional site. He is more familiar with the private uses of the Internet, to retrieve academic information or entertainment and e-commerce.

After exploring the two digital environments under experimental conditions, he began to change his approach to the use of the Internet for the community work they were

[19] *MOVA (Movimento de Alfabetização de Adultos)* is the municipal educational programme that aims to teach the adult population of the shanty towns how to read and write.
[20] *SEJA (Serviço de Educação de Jovens Adultos)* is the municipal educational programme that aims to teach the young adult population of the shantytowns how to read and write.

carrying out at CAR.[22] However, he is critical of the way these environments are used and draws attention to the following points: (a) the need to design easy-to-use interfaces (b) the quality of the institutional information available (c) the need to ensure free access for the local communities in the shanty towns.

The two subjects that show the lowest levels of IT training, *Te3* (*medium*) and *Te4* (*low*) are both staff members from SPM, who are highly experienced in their professional fields (both as architects and urban planners) and long-term municipal civil servants. They have both been closely involved in the process of drawing up the new master plan (PDDUA) and are equally critical in their attitude to the whole process. They stress that, despite the efforts of the Popular Administration to get people involved and eager to talk about the new plan, the final result is, as yet, no more than a highly technical and legalistic planning instrument. Although they acknowledge that some innovations have been introduced, regarding the issue of planning management and participatory practices in decision-making, they maintain that the planning instruments have so far lacked sufficient technical definition to allow any degree of flexibility in the participatory practices. They regard the production and distribution of appropriate planning information and adequate technical planning instruments as being of key significance. This approach is very similar to the standpoint of Cs1 which was analysed earlier.[23]

*(...) The new plan is divided into two parts, the legalistic part, which is concerned with the building norm and the new part which envisages a more flexible system of decision-making and management, based on the idea of implementing a Decision Support System. This is the part that we eventually want to introduce, because at the moment, there is no means of going from one kind of planning to another i.e. from the traditional legalist approach to a more flexible model... There isn't any structure for this; there is no technical support and there is no IT support; in fact there is no support of any kind at all.*[24]

*Te3* maintains that he has some experience in computer-aided design (CAD) but admits to being a newcomer to the uses of the Internet. *Te4* on the other hand, says she is not very well-versed in the use of personal computers, apart from word processing, and that the Internet is a completely new world to her. They both have access to

[21] Translated from the semi-structured interview with Te6, in 22/12/98, CAR-Partenon, Porto Alegre.
[22] See *Box 5* in Annex 7 for a summary of *Te6's* interview that illustrates the experimental situation and, *Te6* interaction with *PortoGeo* application and the City Hall Web site at CAR Partenon.
[23] See Chapter 6: sub-section 6.2.2.
[24] Translated from the semi-structured interview with Te4, 14/01/99, SPM, Porto Alegre.

personal computers and are connected to the Internet and the e-mail, in their work environment at SPM. The experimental interviews were conducted on these sites.

Both the interviewees are accustomed to the traditional geographical information system of SPM which is still in operation. This comprises spatial data which is recorded on paper maps, and coordinated and managed by the SPM cartographic division, and a database of non-spatial data on the building environment, which is supported by the information systems set up and managed by Procempa, through the centralised mainframe system. However, the interviewees complain about the operational problems of this traditional geographical information system, regarding (a) accuracy in the production of required planning information (b) constraints in the flow of information, not only within SPM, but also between the other municipal Secretariats.

*(...) Well I am not the best person to evaluate PROCEMPA's work, but I can say that we have a difficult relationship. There is a great deal of important data that is still in the old mainframe system and we have had little access to this information, which comprises the databank of the whole city built environment and since 1980, we have lacked the analytical tools to work with it. At the same time, the system analysts from PROCEMPA have had difficulty in interacting with us. This is due to the fact that we speak a different technical language. Another thing, the urban law is complicated, the ways we still collect and store data are complicated... Everything prevents us from being active ... with a low rate of information flow.*[25]

They both assert that they have not had personal access to the *PortoGeo* application, although they know of its existence. Their main concern regarding the implementation of the municipal GIS is related to the processes of data production within the municipal administration as a whole and SPM in particular. They stress that there is a need to pay close attention to the issues of accuracy and updating the data that constitutes the SPM databank today, before it can be used as an input for the municipal GIS database. In addition, they insist that there is a need to re-design their working processes if they wish to implement the new technology and ensure it runs smoothly. In their view, SPM is going through a transitional phase and so far, any direct access they have had to municipal information through the networking technology has been

[25] Op. Cit. (24)

through SPM Intranet, which has meant that access to spatial data (the GIS maps already produced are not available in their Intranet) has been severely restricted.

*Te3* shows an interest in operating the *PortoGeo* application and after exploring the features available over a period of time, he thinks that, even though this GIS map should have been designed to a more suitable scale, it would be useful for his routine work. He believes that by accessing the system on a daily basis, he will be able to work on the updating of the database and introduce some routines for more analytical purposes.

*(...) In fact, what is going on here is that everything concerning GIS is being carried out by people who are computer experts and, not by people who have to work with GIS. There are some people here at SPM who are interested in GIS and could undertake these jobs whereas, on the other hand, there are people that work with computers but know little about spatial information. The result is that the technology ends up being controlled by the computer experts.*[26]

Both interviewees claim they have had no previous experience of exploring the *City Hall* web site. As well as this, they say that the kind of information they can get is of no use and that owing to the poor quality of their connection, surfing the Net is still a time-consuming activity that they only use to get really important information. They stress that they have not used the Internet to exchange information and that the e-mail is not a means of communication which helps to coordinate the SPM staff, although most of the technical staff already have their own access to private e-mail.

They are both critical of the interrelationship between the new master plan and the participatory practices of the Popular Administration because it hinges on the question of the supremacy of technical knowledge. Their general position, although in different ways, corroborates the analysis offered by *Po5* on the political power relations that emerge from the institutional planning process and the mechanism to support local democracy.[27]

[26] Translated from the semi-structured interview with Te3, 07/12/98, SPM, Porto Alegre.
[27] See Chapter 6:sub-section 6.2.1.

*Te3* states that he has had two kinds of professional experience[28] in community participation, namely:

(a) large-scale planning - for drawing up the new master plan, when SPM held a series of meetings in the16 administrative regions (Participatory Budget Regions) to assess the needs and expectations of the communities,

(b) small-scale planning - local discussions within communities on the sites where the 'integrated projects' for the regeneration of 3 different areas (*Anita, Nilo Peçanha* and *Lomba do Pinheiro*) are taking place.

*Te4*, on the other hand, claims that she has had no direct professional involvement in the participatory practices of the Popular Administration, although she is co-ordinating the program for the development of the *Decision Support System* which has been designed to manage the new master plan. She explains that the *irregular city* is not included in the urban norm of the new master plan because these areas are an exception to the urban rule normally found in the PDDUA. The urban pattern in the new plan is still the middle-class urban pattern, so the questions related to people who reside in the 'irregular' areas of the city are considered as being an exception to the law and follow urban patterns that are not envisaged by the law.

*(...) - For us here at SPM... incredible though it may seem, there is almost no relationship with the Participatory Budge process. Eventually they may call us to some meeting of the 'Thematic Commissions', but as a principle we have nothing to do with their work...*
*I believe that decisions today are being made by both the community people (these are based on their perceptions as I have always said) and by the technical staff (this is based on their professional experience which is an important consideration as well). But I believe that there is a lot which still has to be done to get a discussion going between them. So the idea of the DSS is to construct a technical instrument that can make infallible technical measurements, or rather to set up urban indicators that can support the participatory decision-making process of urban planning.*[29]

The contents of *Te4* interview corroborates with the findings related to the political dimension analysis that has made clear the division between the urban policies to deal with *regular* and the *irregular* city, within the urban governance context of the Popular Administration. This is related not only to the political sphere of urban planning and

[28] See *Box 6* in Annex 8 for a summary of *Te3's* interview that illustrates the experimental situation and, *Te3's* view of the use of IT in participatory planning practices.
[29] Op. Cit. (24)

decision-making, but also to the implementation of planning technical instruments (such as the new master plan), as stressed by *Cs1*.[30]

### *Tp* subjects

This group category is made up of subjects that have a technical and political background, which means they cannot be classified as regular municipal civil servants.[31] The 4 subjects in this group have been working within the administrative structure on a short-term basis, and have received the backing of the PT party to implement the municipal political program of the Popular Administration. Although they hold key positions as co-ordinators of major programs and departments, they have been facing huge problems in putting their policies into effect through the traditional technocratic apparatus of the municipality. This is a major concern which applies to all the interviewees from SPM, yet the subjects also state that, after ten years of running the municipality, their professional relationship with the body of civil servants has improved a lot. They also admitted that very little of the needed re-organisation of the administrative structure has been put into effect so far.[32]

**Table 7.2 – Distribution of *Tp* subjects by sub-unit/site of analysis and level of IT training**

| IT train. | SU2 | |
|---|---|---|
| | **SPM** | **SMAM** |
| expert | *Tp2* | *Tp4* |
| | *Tp3* | |
| medium | *Tp1* | |

Table 7.2 shows the distribution of subjects in this group category in terms of IT training performance and site of analysis. As in the case of the group category *Te,* all 4 subjects in this group come from a higher academic background and 3 of them displayed expert levels of IT training (*Tp2, Tp4* and *Tp3*). Two of them are co-ordinators of special programs - *Tp2,* the co-ordinator of the GIS program at SPM, is a cartographic engineer specialised in GIS technology and *Tp4,* the co-ordinator of the 'Natural Environment' program at SMAM, is a biologist who is also specialised in GIS

[30] See Chapter 6: sub-section: 6.2.2.
[31] See Chapter 5: section 5.4.
[32] See Chapter 4:section 4.3.

technology. *Tp3* is the advisor of the SPM Secretary and works in the 'Administrative Decentralisation' program; he is a sociologist and electronics engineer. It should be pointed out that the subject *Tp1* has a medium level of IT training; she is an architect and urban planner, and the head of the Department of Urban Development at SPM.

The experimental situation had to be adapted to the requirements of this group category and the degree of willingness of the different subjects to interact with the proposed digital environments. The 3 subjects from SPM adopted a more political approach during the interviews and were more interested in talking about the relationship between the municipal IT policies and their professional activities and problems than in exploring the digital environments. *Tp4,* from SMAM, was quite involved with hands-on computer work at that time and was very comfortable in exploring the experimental digital environments that were proposed.

The interview with *Tp4* took place in the same site of analysis as that which was reported in the case of *Te5* at SMAM. *Tp4* is much more familiar with GIS technology and the municipal program. When asked if he had worked with *PortoGeo* applications before, he gave an affirmative answer. He has played a direct role in the cartographic editing of the *Environmental Atlas* and was involved with the production of the GIS database that provided back-up for this work. He says that, although the SMAM staff carried out the work by forming a technical partnership with the Federal University (UFRGS), they got a lot of data and information from the *PortoGeo* database for the production of the GIS map of the city in the *Atlas*. Like *Te1, Tp4* was also involved in the earlier discussions with the *Municipal GIS Committee* and he has undertaken a critical and technical evaluation of *PortoGeo* application and the GIS policy being carried out by the municipal administration as a whole. He shares *Te2*'s position in believing that there has been a management problem but, in his view the real reason for this has to do with the political constraints which affect the production, management and exchange of municipal information and IT resources between the Secretariats. In the case of SMAM, the strategy employed to get out of this internal political trap was to concentrate on producing the *Atlas.* This supports our analysis of the SMAM approach in our earlier discussion of the *Po2* interview.[33]

[33] See Chpater6: sub-section: 6.2.1.

*(...) - The Atlas came into being almost four years ago. It grew out of the idea of building a working instrument which could both be employed in the environmental debate, and within the technical and academic world but also be aimed at the general public and help in the implementation of our environmental education policy. Since I became involved in this project, our main concern here at SMAM has been that the Atlas might also be used as an instrument to start the process of implementing GIS technology inside the Secretariat.*[34]

*Tp4*'s assessment is that, although GIS technology has only been incorporated by the different municipal Secretariats in isolated strategies, as in the case of SMAM, the results have been positive so far. In the case of the *Atlas* they have achieved a high standard of academic and scientific work, and produced a wide-ranging GIS database that can be used for further analytical purposes, by both the municipality and the university.

*(...) Usually the traditional atlas has information about the Universe, the World, Brazil or Rio Grande do Sul at most... but, in our atlas, the Environmental Atlas of Porto Alegre, you have information about your city, your neighbourhood, even your street... So you can identify the environmental systems that are discussed in your own everyday environment. I believe this might be a great achievement.*[35]

With regard to *PortoGeo*, *Tp4* maintains that the main problem is not that of hardware infrastructure but the updating and provision of GIS software. *Tp4* explains that the technical task of integrating *PortoGeo* and the *Atlas* GIS databases within an update application would not be difficult to solve. In his view, this would require a government decision, as it would involve investing money in software and specialised professional work. In the case of SMAM he claims that, it would be possible to run a GIS application by using their Intranet within the existing hardware infrastructure, as long as they had the appropriate software available. He stresses that this is the next step to pursue but agrees with *Po2* that there is a general lack of hardware infrastructure to meet the needs of all the internal departments at SMAM.

*Tp4's* assessment of the *City Hall* Web site supports *Te5*'s view but like *Te5*, he says that he is not very familiar with the methodological aspects of community work within the Participatory Budget process. He believes the matters they deal with (basic urban infrastructure and public service needs) and the geo-political, organisational basis of

[34] Translated from the semi-structured interview with Tp4, 01/12/98, SMAM, Porto Alegre.
[35] Op. Cit. (34)

the process would benefit from a more direct GIS application, in order to allow the free exchange of relevant information.

As in the case of *Tp4,* the 2 subjects from SPM, who are working with GIS technology (*Tp2* and *Tp3*) are also familiar with the *PortoGeo* application. They show they have a critical overview of the GIS municipal program in general and, the *PortoGeo* and IT policies of PROCEMPA in particular, which also highlight the constraints on hardware and software investment. Although they differed in their emphasis during the interviews, they shared a concern about the production of spatial data. *Tp2* points out that there are technical limits to how far traditional cartographic data can be updated and the result of this is that the digital spatial data that have been produced as separate activities of the different municipal secretariats are lacking in accuracy. In contrast, *Tp3* is more interested in including the spatial data related to the *irregular city* in the official cartographic maps of the city, together with a non-spatial databank which can be set up at the same time.

*Tp2* maintains that, in addition to the contextual restrictions which have been an obstacle to the implementation of the hardware and software infrastructure, political tensions have severely hampered the Committee's role in organising people and introducing the facilities required for a GIS policy which is more compatible with the municipality as a whole. As well as this, there is the problem of an institutional disagreement which exists between the municipal data input and management. This is due to the fact that the paper maps available at SPM have not been updated, and that the associated non-spatial digital databanks have to be re-designed by PROCEMPA.

*Tp2* says that the *GIS Committee*'s initial idea was to design a wholly new project, in order to change from the traditional (paper) to a modern (digital) GIS institutional structure of management of spatial data. This would mean carrying out an aerial-topographical survey to produce a new digital cartographic map of the whole city despite the fact that the costs were rising and the project had never been given high priority by the government. The general strategy of the Municipal Committee has been to search for external funding for the project but it has been a complex matter because of institutional political pressure.

As a result, SPM has decided to adopt a single strategy which consists of producing GIS maps to support the design of a new master plan spatial model. This work was also based on the *PortoGeo* map produced by PROCEMPA but *Tp2* thinks that this information is neither up-to-date nor accurate, in terms of the original spatial data (such as the street system). In addition the adopted scale of the maps is unsuitable for more detailed planning analysis and projects. In parallel with this, SPM is preparing a general program for the implementation of a new municipal information system based on GIS technology. This strategy aims to tackle the issue of institutional data production and management. It has included as a first step, the implementation of a working culture that stimulates the use of computer graphics and the design and management of small databanks by the secretariat staff. In addition, there is the prospect of building a unified municipal GIS database to include spatial data on the *irregular city*; both the data collection for this and the production is being coordinated by *Tp3*.

On the question of IT policy and the experimental design for the City *Hall* web page, *Te2* is highly critical of PROCEMPA's centralised IT strategy that does not allow the Secretariats to access the PROCEMPA Internet server directly so as to change or update its contents. This is why SPM is creating its own homepage to publish the new master plan information within its Intranet under experimental conditions. After being tested internally, SPM expects that it might be accessible on the *City Hall* Web site as well.

*Tp3's* approach to the construction of the new municipal system of information highlights the interrelationship between the participatory strategy within GAPLAN/CRC and SPM.

*(...) - The aspects that deal with urban planning inside the Participatory Budget Process have not been developed very far and we are not yet in a position to advise the community about this. In fact, we are trying to bridge this gulf between the participatory methodology of the Budget Process, co-ordinated by GAPLAN and, the urban planning practices being carried out here at SPM, because today there is still little communication between these two processes. The traditional technocratic urban planning culture is still very strong.*[36]

[36] Translated from the semi-structured interview with *Tp3*, 17/11/98, SPM, Porto Alegre.

*Tp3* points out that, since the process of revision of the master plan was introduced, the shortage of institutional data about the *irregular city* has become apparent. Even though *CRC*, together with the community organisations, has encouraged the introduction of some technical planning criteria to govern the process of decision-making within this participatory process, these technical criteria are still based on very general statistical socio-economic and spatial data. Thus, the information produced lacks detail and accuracy in delineating the peculiarities of each region and their (physical and socio-economic) local characteristics.

*(...) - We need detailed information to monitor the growth of the city, especially within these irregular areas, so that we can plan and anticipate things. So what we are developing now is precisely what I call the 'constitution of an information system for the management and monitoring of city planning'. We are holding discussions with all the municipal organisations that are directly involved in these areas, DEMAE, SMAM, SMS and so on, while using GIS technology to handle this information.*[37]

*Tp3* examines the assimilation of new computer technology in the planning process and provides a critical appraisal of the interrelationship between PROCEMPA and the municipal organisations. This has a bearing on the actual processes of data collection, management, analysis and presentation, which are supposed to govern participatory practices of decision-making in urban planning. *Tp3* claims that only very recently has PROCEMPA started to decentralise its IT policy and introduce more cooperative forms of work with the Secretariats. *Tp3's* observations bear out *Po1*'s political definitions which were analysed earlier, together with IT policies and the urban governance context.

*Tp1*'s opinion of the GIS municipal policy is that, so far the technology has not been spread among the Secretariats and is still a novelty for most civil servants. She, herself, claimed that she had never directly explored the *PortoGeo* application and was ill at ease when asked to do so during the interview. *Tp1* adopts a highly political approach to the issue of urban planning policies and includes in these the transitional period that SPM is experiencing as a result of the imminent approval of the new master plan (PDDUA).

[37] Op. Cit. (36)

*(...) - This is a period when we are building our political plan brick by brick; this is the democratisation of planning practices and the building up of a dialogue with society in the clearest possible ways. And, for this reason, I think IT is indispensable... but we are not sure about our strategy for moving forward in this field. There is also a lack of articulation between the different Secretariats. I believe that, for SPM to fulfil its new role, the problem of political tensions within the governmental structure has to be solved, because this is interfering with all the other working practices.*[38]

*Tp1*'s position regarding the use of the Internet, and in particular the new master plan, is in line with *Po1*'s strategy for implementing online public services (such as planning permission application) and at the same time, re-designing the internal administrative procedures that support these services. When asked about the possibility of exploring IT to empower participatory practices within the community organisations, *Tp1* expressed her doubts about the general issue of popular participation in the current urban planning practices at SPM.

*(...) - We are banking on getting the population involved in a process of strategic thinking about the city... to think about the future of the city... and, even how to improve the Participatory Budget Process. This is our goal here at the Secretariat - to open up a dialogue with the community so that we can draw up a particular planning strategy for each region.*
*I believe that we have to invest a lot in face-to-face contacts... so that we can win the people over to this work, because the people today still have a very restricted view of participation. When you go to the community, usually they want things by tomorrow. And urban planning is not something for tomorrow, urban planning is something to work towards as a result of long-term achievements... And this... this requires a cultural change.*[39]

*Tp1* also insists that there is a need for internal agreement within the governmental spheres about working methods and the management and exchange of information. Her view is that this is a political issue that has to be settled before they can start to use IT as a wide-ranging communication tool. From *Tp1*'s perspective there is a lot of internal work to be done before SPM can adopt IT policies on a wide scale. Her main concern is not the material infrastructure of IT, but the lack of human resources available for this kind of task.

### *Tc* subjects

[38] Translated from the semi-structured interview with *Tp1*, 11/12/98, SPM, Porto Alegre.
[39] Op. Cit. (38)

The 6 subjects, which make up the Tc group category cannot be classified as ordinary civil servants, as in the case of the *Tp* category discussed earlier. Like the *Tp* category, they have strong political ties with the Popular Administration, although their profile is political rather than professional i.e. they have had previous experience within the organisations of the 'popular' movement. This is why they have set up a new administrative structure (CRC/CAR), which is responsible for coordinating the relationship between the community organisations and the Popular Administration[40] and, in particular the Participatory Budget Process.

Table 7.3 shows the subject's distribution regarding the site of analysis and their level of IT training. Two of the subjects in this group show a low level of IT training (*Tc6*) inside the CAR organisation, or none at all (*Tc4*). At the same time, four subjects (*Tc1, Tc2, Tc3* and *Tc5*) display medium levels of IT training in both the administrative structures (CRC and CAR).

**Table 7.3 - Distribution of *Tc* subjects by sub-unit/site of analysis and level of IT training**

| IT train. | SU3 | |
|---|---|---|
| | **CRC** | **CAR** |
| medium | *Tc1* | *Tc3* |
| | *Tc2* | *Tc5* |
| low | | *Tc6* |
| illiterate | | *Tc4* |

The six subjects in this group come from different academic backgrounds and there is no obvious connection between their professional qualifications and the kind of job they are doing (the exception here being *Tc3*, who is a professional social worker). *Tc1*, who co-ordinates the Administrative Decentralisation Program at CRC, is a sociologist and *Tc2*, who is the Secretary of the Participatory Budget Council, only has a secondary-school level of education. Of the four subjects from the CAR organisation, the person who is the co-ordinator of CAR-Restinga did not complete his higher education course (*Tc6*). The three others (*Tc3, Tc4* and *Tc5*) are all working as community activists (Regional Co-ordinator of the Participatory Budget or CROP) for different regions (*Leste, Partenon* and *Norte*, respectively). Two of them have post-

[40] See Chapter 4: sub-section 4.3.1.

graduate degrees, while *Tc4* has only had secondary-school education. This suggests that the subjects who hold positions as CROP, in the Popular Administration, are selected on the basis of their community practices rather than technical or professional criteria.[41]

In contrast to the more skilled professional and technical groups discussed above, this group of subjects is less familiar with GIS and IT. Yet only one out of six (*Tc5*) has never seen PortoGeo before, and only two of them (*Tc3* and *Tc4*) have never seen the *City Hall* Web page before. They are much more at ease with the experimental situation and all of them are willing to give it a try and explore the digital environments, by themselves.

The interviews with the subjects from CRC (*Tc1* and *Tc2*) took place at the City Hall headquarters and their own local equipment was used to access the Internet, while the *PortoGeo* application was run on our own laptop, since they did not have the *PortoGeo* installed locally either. The two subjects performed in different ways in the digital environments. *Tc1* was best at Internet navigation, was very familiar with the *City Hall* Web site and said he was an Internet user. He was also responsible for feeding PROCEMPA with updated information for the Participatory Budget page, as well as answering the e-mail messages addressed to the page. He said it was his first experience of operating *PortoGeo*. After exploring the features for a while, he realised that a similar tool with the necessary information and an easy-to-use interface would be extremely useful for the implementation of the decentralisation program.

In *Tc1*'s judgement, local access to updated institutional information is crucial to the success of the Administrative Decentralisation Program. He recalls that when the CARs started to be implemented (1995), they had some digital infrastructure installed (mainly dumb terminals mainframe). The GIS and IT infrastructure, as well as Internet access, is a more recent development in the municipal informational structure. This means that this technology is still far from being available for the local communities of the 16 administrative regions.

[41] See Chapter4: Sub-section 4.3.1.

*(...) - I believe this new technology have not yet been adapted to the needs of the civil servants of the City Hall as a whole, or... even within the government... So this is technology that has not become popular so far.*
*I believe that, to some extent, this is our main challenge at the moment...information. We must draw up a policy for the production... dissemination, access...democratisation and filtering of information. Hence, we need to make information public and accessible, so that every citizen can have access to it and get answers... In this way, we can create the right conditions for equality...or rather, democracy.*[42]

*Tc2,* on the other hand, was very confident about her ability to operate the *PortoGeo* application and stated that she had had previous experience of working with GIS technology, when she collaborated in the production of a health services system GIS map, in the Municipal Health Secretariat. At the moment, *Tc2* is also participating in the administrative regionalisation program and the production of a unified GIS database, along with *Tp3* at SPM. She was not so sure about Internet navigation and maintained that she was not an Internet user because she did not have time to stay in front of the computer screen, nor was used to doing so, although she has free Internet access at work. Like *Tc1,* she gave a critical appraisal of the contents and interface of *PortoGeo* in providing the information that the community organisation needs to carry out routine work within the Participatory Budget Process.

*(...) - This information does not make much sense to the communities; they want to know how many shanty towns there are in the region, how many neighbourhoods; they want to know about the basic infrastructure,,, water system, garbage collection... It would be very useful to have this information here, so that everybody could know about the Participatory Budget criteria, and the local requirements of the people ... And today the Secretariats are already drawing up an inventory, so if everybody could locate the information they need on this map it would be very useful.*
*The problem is that the people still do not have a clear vision of the city as a whole... because of the regions... within the regions there is a tendency for people to see only their own region, their own street...*[43]

*Tc2* is not very fond of using the Internet, she states that the councillors in the Participatory Budget Council designed a project to introduce their own web site some time ago. The project suggested that the municipality should provide open and free access to the Internet, either in the CARs or, in special public places in the city to support the work of the Participatory Budget Council. *Tc2* says this was done on the

[42] Translated from the semi-structured interview with *Tc1*, 09/12/98, CRC, Porto Alegre.
[43] Translated from the semi-structured interview with *Tc2*, 09/12/98, CRC, Porto Alegre.

initiative of the councillors themselves at the time when there were members of the Council with IT training. The CARs are able to work towards fulfilling their goal, a fact which lends support to the political approach to this issue adopted by *Pol. Tc2* shares *Tc1*'s view that the changes in the networking infrastructure introduced by PROCEMPA are very recent and are still being introduced. CRC and the COP have plans to re-design their working routines and make e-mail a normal means of communication, at least in the different departments of the administration.

The subjects working as CROPs (*Tc3, Tc4* and *Tc5*) adopted a very practical approach to this issue, while interacting with the digital environments, under the proposed experimental conditions. They asked questions about the features of *PortoGeo* and recognised the usefulness of the application to their routine work at CAR and within the grassroots communities in their regions (*Leste, Partenon* and *Norte,* respectively). Their main criticism was that there was a lack of data about the *irregular city*, which is the area of their work. It was the first time that most of them had ever navigated the *City Hall* Web site (the exception here being *Tc5*) and they found it an easier task than they had imagined. However, they felt disappointed by the poor content of the site and particularly criticised the lack of up-to-date and useful information on the Participatory Budget Web page.

*Tc3* adopts a practical approach which gives priority to the process of education local community leaders in the grassroots communities of the region. She argues that the *Leste* region is one of the regions that has produced most community leaders of quality. This has resulted in a shortage of leaders who are able to work for the popular movement on a local basis, as their former leaders are now qualified for more political and professional jobs in the city at large (either within the City Hall or the Municipal Council). She stresses that most of the local political leaders in the region have been constituted by means of a praxis and she regrets that a more systematic methodology is lacking for integrating the grassroots community learning process within the popular movement. When asked if she believed IT might help in this task, *Tc3* answered that she was not sure, as she was not a regular user of the technology herself (CAR-*Leste* is one of the regional centres that did not have a networking connection at that time).

*(...) - I believe people are very afraid... I believe it is not clear for most people... or for myself either... this question that technology might be a substitute for interpersonal relationships, you now...*
*The purpose of participation within the Popular Administration is to build... because it is not just to go there to complain... just to ask for things... It is mainly to build up a collective consciousness... and so forth. And the fear is that, this kind of communication... electronic communication might become a substitute for interpersonal face-to-face communication.*[44]

*Tc4* works for one of the CARs (*CAR-Partenon*) that has got IT infrastructure and Internet access, he regards himself as computer illiterate; however, he insists that he wants to learn. His work in the region is highly political and follows the same pattern as his previous experience as a community leader of the popular movement. Most of his routine jobs are to do with assisting the organisation of grassroots communities to take part in the Participatory Budget Process. *Tc4* believes that he must have access to institutional information to carry out this task, especially when it is a question of undertaking the Investment Plan (projects and civil construction work approved by the COP). He thinks that the participatory process has been improving over the years but that there is still a lot of grassroots work to be done because there are huge differences in the degree of community organisation and leadership between the 16 regions. In some of them, the participatory process is still only centred on the immediate needs of the urban infrastructure.

After exploring the digital environments for a while, with some help from the interviewer, *Tc4* seems have enjoyed himself with the information he was able to retrieve by interacting with both instruments. His conclusion is that the technology is there, but he has not had the chance to use it so far, because he thought a certain amount of special training was needed before he could give it a try.[45]

*Tc5* regards himself as a computer literate person who has been self-taught. Since he is a retired schoolteacher, this allows him to approach the use of computers out of personal interest and he says that he has always enjoyed playing around with personal computers. He also mentions that CAR-Norte is already using computers to help with routine activities such as (a) basic computer graphics (simple sketches to pinpoint road construction works which are required by the local communities), (b) building up

[44] Translated from the semi-structured interview with Tc3, 12/01/99, CAR-Partenon, Porto Alegre.
[45] See *Box 7* in Annex 9 for *Tc4's* experimental interview at CAR - Partenon.

simplified databanks for handling internal activities (meeting requirements and undertaking services). *Tc 5* also states that owing to the particular characteristics of the region,[46] the people face chronic housing problems. These concern the longstanding presence of squatters on public land and the springing up of new slum areas, even though DEMHAB is putting into effect a program of 'property regularisation' throughout the region.

*(...) - We are adopting an approach here which is as follows... our main job here is to handle information, in my case mainly... Of course, this is on top of all the political work that always has to be done.*
*Today the main problem is a lack of institutional information and effective communication between the Secretariats, because they have different systems to deal with the same information. This has got to such a state that we, who are the ones who need this information to pass on to the communities here in the region, are faced with huge problems sorting out the information needed for the projects and construction work being carried out by the central administration.*[47]

As a result of his interaction with the proposed digital environment, *Tc5* concludes that CAR-Norte could benefit from a similar system to that of PortoGeo, once a proper GIS database with the relevant information from the different Secretariats is available. He is critical of the possible uses of the *City Hall* site on the Web and thinks there is a need to keep up-to-date information and increase the availability of online services. In his view, it would be very helpful if there was a specific Intranet just for the CARs to exchange information with the central administration. This corroborates Po1's political approach to the use of IT in the administrative decentralisation program, as well as enabling working processes to be redesigned.

*Tc6,* the co-ordinator of CAR-Restinga, was closely involved with a local program of cultural activities[48] which were held at the time when the interview was carried out. He thus found it difficult to find time in his schedule to carry out the activity of exploring the digital environments. Moreover, he was not comfortable with the idea of performing digital interaction; instead, he wanted to draw on his position as a political leader of Restinga and talk about the main problems and the projects being carried out in the region. Restinga stands out from the other 16 regions in one particular way

[46] See Chapter 4: Section 4.3 on squatter movements in the late 1980s.
[47] Translated from the semi-structured interview with Tc5, 14/01/99, CAR-Norte, Porto Alegre.

which is related to its origins.[49] This is the fact that it came into being as a municipal housing program and this makes it particularly difficulty to instil the kind of democratic practices required for grass-rooted community work.

After exploring the digital environments for a while, *Tc6* said that he was not used to working with computers on his own. Whenever he needs some information, he asks the secretary to retrieve it, which she usually does by using the traditional mainframe system. He adds that a common strategy of CAR-Restinga is to increase community participation by introducing a community radio station to promote local social and cultural activities. He agrees that IT tools might help the CAR work if he is able to get enough specialised people to do the job. His opinion about the use of IT by local communities is very much in line with political position of *Po4*.[50]

### 7.2.2 Subjects from the community organisations

The five subjects who make up the *Co* group category are not civil servants; being members of the Participatory Budget Council (COP) their work in the area of government is voluntary and they act on behalf of the local communities through a process of direct representation.[51] This means that they do not receive any sort of remuneration from the municipality. Any citizen can be appointed as a COP councillor for any region, as long as he/she dwells in the region. As Tc1 and *Tc2* mention, there are usually a large number of community leaders in this category who come from social organisations within the popular movement.

Table 7.4 illustrates the level of IT training of each subject and the particular regions they represent. The subjects in this category either show low levels of IT training (*Co1, Co2* and *Co3*), or no training at all (*Co4* and *Co5*). Due to the methodological requirements of our research, whenever possible they were interviewed at the CAR of the region in which they were representatives (the exceptions here being *Co1* and *Co4*). The only subject with an advanced academic qualification (*Co4*), has had no IT training at all, while the rest of them have only been educated to secondary school

[48] *Semana da Restinga* (Restinga's Week) was a socio-cultural event to promote the local culture of Restinga through art, music and dance activities.
[49] See Annex 3 for an illustration of Restinga region.
[50] See Chapter 6: sub-section 6.2.1.
[51] See Chapter4: Sub-section 4.3.1.

level. There is no evidence of any link between academic qualifications and IT training in this category of subjects.

**Table 7.4 - Distribution of *Co* subjects by site of analysis/region and level of IT training**

| IT train. | CAR/Region | | | | |
|---|---|---|---|---|---|
| | Ilhas | Partenon | Gloria/Cruzeiro/Cristal | Leste/Nordeste | Restinga |
| low illiterate | *Co1* | *Co2* | *Co3* | *Co4* | *Co5* |

Most of the councillors claimed that they had never heard of *PortoGeo* or the *City Hall* Web site. The exception was *Co5,* who stated that he had seen the *City Hall* Web site on the screen before but had never navigated the Internet on his own. Three subjects (*Co1, Co2* and *Co3*) confirmed they had had previous experience of using personal computers either at home or in their work-place, but they were not Internet users, although they had heard about the service and had some idea about how it worked. The two subjects that regarded themselves as computer illiterate (*Co4* and *Co5*) had no direct access to personal computers, either at home or in their work-place but they, too, both had some idea of what the Internet is about. In fact, there are only two subjects involved with CARs who are without any Internet connection (*Co1* and *Co4*).

Most of the subjects were a bit apprehensive at the beginning, but after a brief informal chat about their work as COP *councillors*, they all felt at ease with the experimental situation and the digital environments presented to them during the interviews. They even became curious about it and expressed a willingness to give it a try and explore the digital tools by themselves, with some basic advice from us. The councillors' interactions with the digital environment displayed a very practical approach which was similar to the performance of the *Tc* subjects. At first, they had some difficulty in operating *PortoGeo*, but later they were able to understand the main features of the application and started to associate the usefulness of the tool with the institutional information they needed for their social work as COP councillors. They were disappointed when they were unable to retrieve any particular information about their regions, although they had been able to locate it in the GIS map provided by the *PortoGeo.*

Exploring the *City Hall* Web site turned out to be an easier operation, even though the subjects said it was their first experience of navigating the Net by themselves. They were mainly interested in searching for information about the Participatory Budget (OP) and the Council (COP). Some of them were able to find their own names in the list of COP councillors and assistants displayed on the OP Web page. Their constant complaint was that there was a lack of relevant information about the specific regions and a failure to update available institutional information on the OP. They found the more detailed information that they were able to get very useful, such as the OP *'Investment Plan'* for the coming year.

Three of the five subjects were originally leaders from grassroots community organisations (*Co1, Co4* and *C5*) in their regions (*Ilhas, Nordeste* and *Restinga*). The two others had had previous experience in other kinds of social organisations such as (a) the teachers' trade union[52] (*Co1*), (b) the network of Christian Based Communities[53] (*Co2*). It should be noted that all the subjects in this category adopted an approach which was similar to that of Cs3 and Cs4. This was to explain their vocational involvement within the OP, although with a different emphasis. They take their political role, as citizens' representatives in the COP, very seriously. They share a very positive admiration for the social and political achievements of the OP with regard to the main issues of the popular movement agenda - social justice and direct democratic practices.

*Co3* is the councillor for the *Glória* region and, as a retired schoolteacher, employs a learning approach to explain the question of popular representation within the COP organisational structure. She tells a popular anecdote[54] that summarises the common understanding that the councillors have of the political role they play in the participatory practices of decision-making when managing the city budget; this is in marked contrast with the traditional mechanisms of representative democracy. Their position supports the general political conceptions of the COP and the interrelationship between direct and representative democratic practices within the PT political project, (as described by *Po5* earlier).[55]

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[52] *CEPERGS* is the State teachers' trade union which has an individual political voice within the popular movement in both Porto Alegre and Rio Grande do Sul.
[53] See Chapter 4: Sub-section 4.3.1.
[54] See *Box 8* in Annex 10 for *Co3*'s experimental interview at CAR Gloria
[55] See Sub-section 6.2.1.

*Co2,* who is the COP councillor of the *Partenon Region*, shares a similar social learning approach to understanding participatory practices as *Co3*, although she attaches importance to the humanitarian aspects of the process. While *Co3* stresses the social and political aspects of participation, reflecting her own background as a trade union leader, *Co2* (a Christian leader) believes that the role of the grassroots leaders is to teach the disempowered communities how to organise themselves so that they can take part in this process and learn from it.

*(...) - People are still waking up, even today... There are still people that do not know how the OP works... Then you have some people that think they know when actually they don't ... So one of the things that I believe is very important for the OP is to have leaders that are able to teach the local communities.*[56]

Despite their different political backgrounds, *Co2* and *Co3* share the view that, although a lot has been achieved in the time that OP has been active, there is still a long way to go. Educating the people who are disempowered is the path to follow if one is to achieve enduring change. They regard the cyclical aspect of the *OP,* with its constant turnover of new community representatives, as offering the means for ensuring that everybody can participate (regardless of their political affiliations) and at the same time, learn from it.

*Co2* and *Co3* were eager to explore the digital environment and after a while, showed some concern that there was a lack of detailed information about the environmental, social, economic and cultural characteristics of the different regions. They were really delighted with the GIS technology and the way it enabled them to retrieve spatial information, which was a new experience for them. They were critical of the institutional Web site, because there had not been any previous discussion between CRC/CAR staff members and the COP representatives about the contents and design of the OP homepage. They both thought that this technology might help provide access to qualified institutional information and thus benefit the social learning process embedded in the participatory practices. They insisted that free and open access to the technology was an essential precondition for implementing any policy that might encourage the use of IT by the COP representatives.

[56] Translated from the semi-structured interview with Co2, 07/01/99, CAR-Partenon, Porto Alegre.

The three subjects (*Co1, Co4* and *Co5*), who come from similar backgrounds as leaders of community associations in their regions, view IT primarily from the perspective of its possible uses for their community organisations. *Co1*, a professional fisherman, with secondary education and a traditional leader of the grassroots fishermen's community at Pintada Island, is the COP councillor for the *Ilhas* region. He is the president of the local community organisation, called the *Fishermen's Colony*. This consists of about 3,000 affiliates, 400 of whom are professional fishermen that live in the region, while the rest are amateurs that enjoy going fishing as a sport. The natural environment and the geographical characteristics of the region have led to the area being designated an Ecological Reservation and it is run by two political bodies, the city government and the state administration.

The island association did not have Internet access but at the time when the interview was carried out, was equipped with an old 486PC which was used to do the work of a databank for the associates. *Co1* says that the changes introduced as a result of the OP policy led to a growth in the number of community participation. This corresponds with the assessment given by *Cs3* and *Cs4* about the relationship between local government and the popular movement.

*(...) The way the Popular Administration has been carrying out work with the community did not start from the top, but from the bottom, with the participation of the communities... Here in the Colony we had an opportunity to pursue our work further among the professional fisherman...*
*We are the ones who decide; the only thing that you have to do is to participate... And this helped revive the importance of community work in the Colony; it has woken up the professional fishermen and made them want to participate in the Colony organisation once again.*[57]

*Co1* explains that there used to be a CAR headquarters on the Island and it was located in the *Colony* building. This is no longer the case since the demands of the community for basic infrastructure and sanitation, have been met and the geo-political boundaries of the regions have been altered. After this had happened, the *Ilhas* region was incorporated into a wider group of regions which included *Ilhas, Humaita* and *Navegantes*. However, *Co1* goes on to point out that the geographical location of the region and its special environmental characteristics has prevented it from becoming

[57] Translated from the semi-structured interview with *Co1*, 08/12/98, Fishermen's Colony, Pintada Island, Porto Alegre.

more closely involved with the OP process. All the same, a number of important community projects have been undertaken such as (a) the construction of a deep-freeze store for the fishermen's cooperative, which has already been put to the vote and approved by the OP (b) the long-term Eco-Tourism project which is to be implemented by the *Colony* in association with the municipal administration.

While exploring *PortoGeo, Co1* was very eager to know how he could get institutional information by using the application. He says that access to information is vital to the success of the community projects and he is seeking a way to improve the *Colony's* digital infrastructure so as to obtain an Internet connection. He recognises that there is still a problem of telecommunications infrastructure on the island and that this requires considerable financial investment.

The COP's councillor for the *Nordeste* region, *Co4,* is a new leader within the popular movement. He is the leader of a small community made up of 140 families which two years ago took possession of a municipal area and set up a squatter settlement - *Vila Parque das Horquídeas.* They wanted to take part in the municipal property regularisation program, but were told by the DEMHAB that they could only stay in the region if they had the consent of the COP. *Co4* states that it was through this experience of participating in the OP that he became aware of the serious housing shortage in this region and, more recently, in the other 15 regions of the city as well.

*Co4* explains that there have been a lot of social conflicts among the community leaders in the *Nordeste* region and he is carrying out research into the history of the community associations in the region to find out the causes of this. He claims that it is a hard job because community organisations tend to rely on oral traditions rather than written documents. His goal is to build up a digital databank so that everybody can have access to the history of the communities in the region and he soon realises the potential value of *PortoGeo* for the work he has in mind. He adds that in the last few months he has also been collecting statistical data about all the 16 regions of the OP.

*(...) - I believe that each region should have a computer with access to all the information of both its own region and all the others, which means all the 16 regions of Porto Alegre. How would this work?...*

*Well, there are people who say that it doesn't matter if you put a computer in the association, or in a school, a church, and a club... as long as everybody can have access.*[58]

Co4 agrees with the other councillors that the *institutional web site* should have more detailed up-to-date information, particularly regarding OP and COP. He believes that once the institutional site can provide suitable information, having free and open access to the Internet could make a significant difference to the councillors' work. In fact, he is enthusiastic about the possible uses of the Internet.

*(...) - I believe the Internet is the quickest way to get all the information we need if you compare this with the amount of time that we spend on administrative procedures trying to get information from a Secretariat... For instance, if you want to get a paper map of the Nordeste region, you have to write out a formal letter, send it to the Secretariat and then come back to collect it a week later.* [59]

The COP councillor for the *Restinga* region, *Co5,* also said that he had never used a personal computer on his own before and was very excited about the prospect of participating in the experiment. He did not complete his formal education at secondary level and has a job recycling paper on a self-employed basis. He is also the co-ordinator of a programme designed to stimulate the local generation of capital for the poorest community at Restinga, which is a joint venture between the local community, the municipal administration and non-governmental organisations. This project involves implementing a city-wide programme of garbage collection for recycling and 8 recycling plants in different districts of the city, where formerly paper was collected in an informal way without any infrastructure.

*(...) - Restinga has never had a local programme for generating capital before and there was this situation of high unemployment, especially among the women from the slums who stayed at home while their husbands went to the city centre to try to find a job. As a result, here was a lot of violence in the community and very low levels of participation. So we joined forces...the neighbourhood associations, the Church (which helped a lot at the beginning), and other organisations that have had previous experience in this field; we got together to find out how we could carry out this kind of work here at Restinga.*[60]

[58] Translated from the semi-structured interview with *Co4*, 12/01/99, CAR- Partenon, Porto Alegre.
[59] Op. Cit. (58)
[60] Translated from the semi-structured interview with *Co5,* 14/12/98, CAR- Restinga, Porto Alegre.

*Co5* claims that he managed to change the attitude of the councillors towards the work of the paper collectors, first in his capacity as a COP delegate and then when he was a COP councillor. The COP agreed to provide the municipal finance that was required for setting up the Plastic Recycling Plant at the Industrial District of Restinga. This included a central office with a computer network to handle the recycling work and Internet connection for the business. Their goal is to form a co-operative of recycling workers.

*(...) - So this IT business office was hard to get... people used to say – why does that garbage man, that garbage collector in Porto Alegre need computers? What for?... At first, people could not understand that. So I had to explain... The recycling worker, he/she is always falling into a trap when he sells the raw material to the dealers who only sell it on again later. Once we set up our own office, we can cut of the dealers and sell the raw material by ourselves; what's more, when we have an Internet connection, we can even think about exporting raw material of high quality.*[61]

*Co5* had some difficulty in operating *PortoGeo,* but after getting some help, he found it easier to explore the *City Hall* Web site. He has a similar opinion to the other *councillors* about the institutional information available on the digital environments. He is enthusiastic about IT and thinks that it would be very helpful if every community association with a large number of members could have access to computers and the Internet connection so it could carry out its own programs and activities. He also thinks the COP councillors will be in a better position to do their work, preparing their meetings or retrieving and exchanging information via the Internet, as soon as they have access and institutional information available online.

### 7.3 Research Findings related to the Analytical Dimensions

Before embarking on the hands-on fieldwork, we set out a hypothesis that the institutional digital environments would not assist in the *exchange of ideas* or in building up a *consensus* between the different group categories of subjects in the three *sub-units of analysis* (*SU1, SU2* and *SU3*). This general hypothesis was based on the dominance of the networking logic and the prevailing role of technological elites in developing informational space, as outlined in our theoretical framework.

[61] Op. Cit. (60)

The results that emerged from the experimental interviews with the four group categories of subjects (*Te, Tp, Tc* and *Co*) in the three sub-units of analysis, have partially borne out the validity of this general working hypothesis. The group categories *Te* and *Tp,* which include the institutional technological elites, consist of subjects that are actively using the digital environments in their routine work (*Te1, Te2, Te5, Tp2* and *Tp4*), either as producers or users of *cspace/cyberspace.* This includes the traditional ways of using IT within the institutional domain. It covers (a) the development of academic and scientific research partnership programs (*Tp4* and *Te5*), as in the case of the *Environmental Atlas* (b) the development of specific programs and projects within the sphere of government, such as the new *Municipal GIS* (*Te1*and *Tp2*) and the new *Master Plan* (*Te2*).

The findings from the analysis of these group categories also run counter to our general working hypothesis in that they show that there are subjects (*Te6* and *Tp3*) who are actively using the institutional digital environments to help in their task of supporting grassroots community development, in the *administrative decentralisation* and *popular participation* programmes. It appears that group category *Tc,* which consists of subjects with less technical training (*Tc1, Tc2* and *Tc5*) also use IT for non-routine jobs when working on the grass-roots *participatory* program.

The *Co* group category comprises the subjects with the lowest levels of academic training and supports the general working hypothesis inasmuch as it reveals the lowest levels of IT training and least familiarity with the institutional digital environments. This category encompasses subjects from the community organisations, who are associated with the municipal sphere of government as a result of the *direct democratic* practices of the Popular Administration.

Paradoxically, the findings that emerged from the experimental interviews showed a similar variation in the degree of IT understanding and familiarity with the institutional digital environments between the different group categories. This bears out the fact that it is possible to discern a similar socio-cognitive pattern of interaction between the subjects in the group categories *Te, Tc* and *Co,* whatever their level of academic and specialist training may be or however much free and open access to *cspace/cyberspace* they may have. Indeed, it suggests that there is a pattern of *insurgency* in *social spatial*

*relations* in *informational space* which is analogous to the paradigmatic shift in social spatial relations which is taking place in the real life context of urban governance.

Although cspace/*cyberspace* is still in its incipient stages of development and open and free access has not yet been firmly established, a number of significant socio-cognitive patterns of interpersonal interaction emerged from the experimental interviews. These patterns highlight both the potential scope and limitations that these tools have in helping to form a new social learning environment to improve participatory practices in urban planning.

The patterns of interpersonal socio-cognitive interaction are derived from the typical performance of the subjects in the four group categories, when the results of these interactions in the digital environments are analysed in the light of the two analytical concepts - *intellectual cooperation* and *social representation.* These findings are now discussed insofar as they apply to each group category.

### 7.3.1 Intellectual cooperation

As far as intellectual cooperation is concerned, there is a wide variation in the *scale of values* adopted by each group category; this is reflected in the differences in the *language* employed to exchange ideas about the city and its representation. The interaction of the subjects inside the *PortoGeo* environment enabled us to identify these differences clearly, when subjects express their main concerns in relation to (a) the lack of data associate to the GIS database or, (b) the GIS map and its limitations in the spatial representation of the *regular city* or the *irregular city.* Subjects from the technological elites (*Te* and *Tp*) are mainly concerned with the *regular city* and follow the legalistic approach embedded in the new master plan for the city representation model. The exception here is *Tp3* that reported to be engaged in a singular attempt to build a geographical representation of the *irregular city* to be incorporated in the geography of the official city.

Subjects in these group categories approach the municipal GIS database deficiencies in accordance with their needs for routine activities and specialised professional fields of interest (natural environment in the case of subjects from SMAM or, build

environment in case of subjects from SPM). On the other hand, subjects in these groups, who are specialised in GIS technology (from SU1-PROCEMPA or, from SU2-SPM and SMAM), are more concerned with the technological limits of the GIS tools in relation to the general uses they envisage for the municipal administration as a whole. Nevertheless, a clear pattern of heteronomous and technocratic interpersonal relations is evident by the constitution of a variety of initiatives for building specific GIS applications to face particular demands for routine activities and departmental interest. These activities are developed by each Secretariat without exchanging common databases or digital information, despite the official existence of the Municipal GIS Inter-Secretariat Committee that should integrate this work.

The findings concerning the group categories *Tc* and *Co* seem to hold the key for possible changes in the traditional patterns of technocratic interpersonal relationships. This is precisely because the majority of subjects in these categories are concerned with the issues of the *irregular city* and *Tc* subjects' institutional position within the government has been forged outside the traditional pattern of the technocratic structure. These subjects have brought to the municipal sphere not so much their professional expertise but mainly, their practical experience in grassroot community development, from previous experience within the organisations of the popular movement and civil society. This implies that they have built through experience, or social learning practices, a common *scale of values* that allow them to use a similar *language* to subjects in the group category *Co* and, at the same time, share the same concerns in relation to the *irregular city.* This similarity of languages and interests is clearly identified when these subjects interact with *PortoGeo* environment and point out the lack of relevant information and spatial representation in the GIS database, of the regions in which they work (*Tc*) or, from where they are representatives (*Co*).

Although the translation from institutional *cspace* into *cyberspace* is still embryonic, the proposed interaction with the *City Hall* Web site, allow us to identify the disparity of social interactions between the distinct group categories in this environment. This is evident even when considering that, *Te, Tp* and *Tc* group categories are not making systematic use of the basic digital communication features available, such as e-mail. This reinforces the dominance of a similar pattern of technocratic interpersonal interactions in the production of the institutional cyberspace.

The information and contents of the institutional cyberspace even when designed to address a specific public, as in the case of the Participatory Budget page, failed to use the appropriate language or include the relevant data. This is evident from the results of the interactions of *Tc* and *Co*, which demonstrates that these subjects are not the active producers of the information in these web pages. The interviews have shown that, given the right digital infrastructure conditions they are willing to do so, in line with their social learning practices. This is particularly the case of the subjects in *Co* group category that maintain an informal link to the government structure based mainly on interpersonal relationships. Inside the governmental structure, *Tc* subjects (within SU3-CRC/CARs) express doubts about their institutional capability to promote the needed digital infrastructure for this task.

The dominance of the institutional use of specific intra-networks within each sub-units of analysis reinforces the constitution of sociocentric networks, which tend to link individuals that already share the same *scale of values,* allowing the exchange of ideas only between intellectual equivalent partners. In relation to the group categories that encompass the technological elites (within SU1 and SU2), we find no major evidences of cultural changes that might allow building a new social learning environment in the institutional informational space. The experimental interviews point out a process of simple translation, from the dominant and traditional interpersonal face-to-face, heteronomous technocratic, relationships into the institutional digital environments, which imply even higher degrees of specialisation and segmentation in the production and distribution of information and knowledge, within the institutional sphere.

### 7.3.2 Social representation

From the above analysis it is possible to envisage that the difficulties in achieving true cooperation, or rather intellectual cooperation, on interpersonal bases between the distinct group categories (*Te, Tp, Tc* and *Co*) lays precisely in the fragmentation of special interests within the distinct power groups. This is confirmed by the socio-cognitive performance of power groups within the institutional sphere (such as the technocratic elites) as much as by their relationship with society at large (specially the group category of representatives from grass-root communities).

The findings from our experimental interviews allow us to point out the existence of a dialectical relationship between the two tendencies, either fragmentation or the integration of interpersonal interactions within digital environments. The dominance of one or the other is connected with the ability of the different group categories to construct a common scale of values, starting by sharing a common language to produce information about the city and to exchange relevant ideas. The above discussion on the research findings has made evident the deficiencies in both cases, the production of pertinent digital information about the city and the flow of information between the distinct group categories. This is apparent in the analysis of the subjects interaction in the two institutional digital environments, that have underlined the deficiencies of the *PortoGeo* GIS database and the scarcity of information flow within the *City Hall* Web site, at the moment.

The socio-cognitive conflict that undermines the interest of the group categories underneath this process, within the governmental sphere, follows an antagonistic vision of the socio-spatial conflicts in city, divided between - *the regular* and *the irregular city.* This dichotomy in the paradigmatic approaches between the different group categories restrains the development of a common socio-cognitive representation field that could enhance the process of participatory decision-making within digital environments.

## 7.4 Summary of the Research Findings

The aim of this empirical investigation is to clarify whether or not the constitution of institutional *cspace/cyberspace* might serve to empower the face-to-face participatory practices of the Popular Administration in Porto Alegre. It was discovered that this simple question entails understanding a complex and dynamic process of ongoing social change on a local scale. Our research findings have drawn on empirical evidence to show that there is a dialectical dynamic underlying this process. Moreover, despite some findings to the contrary, on the whole, the evidence supports our original theoretical working hypothesis about the dominance of the global networking logic, and the way that it is reproduced by the local elites. The research findings have a bearing on three methodological analytical dimensions - *urban governance, informational space* and *informational social learning in urban planning.*

Our study has revealed that the process of constituting institutional *cspace/cyberspace* is still in its early stages and has had to struggle against serious contextual constraints arising from questions of infrastructure, despite there being a local political desire for its implementation. There was no evidence of a well-established process of *participatory practices* taking place, within the municipal *digital environments* (*PortoGeo* and the *City Hall* Web site), at the time the hands-on fieldwork was carried out in Porto Alegre. However, there have been significant trends in the socio-cognitive aspects of group and interpersonal social/spatial relations, (which were identified in the empirical investigation), and this makes clear that the first signs of an informational networking process have already started to appear on a local scale. In our view, a better understanding of the process of strengthening *participatory practices,* aimed at social change, can be obtained by revealing and analysing these socio-cognitive patterns of social/spatial relations.

There now follows a summary of the main findings that arose from studying these transformative features of social spatial relations. This will form the basis for further discussion, together with the theoretical model for the development of informational social learning in urban planning, in the final chapter of this thesis.

The constitution of institutional informational space has run parallel with the development of three separate but interconnected processes on a local scale. The convergence of these processes can be characterised as a transitional phase in the context of urban governance, within the Popular Administration of Porto Alegre. The processes include (a) the introduction of IT to help modernise the production, distribution and management of municipal information, (b) the re-designing of the city planning and management model (c) the implementation of direct democratic practices of citizen participation within the local government. A separate urban policy is associated with each process (*P1, P2* and *P3*); this policy is put into effect by a specific city agency that comprises the respective *sub-units of analysis* of our research study (*SU1, SU2* and *SU3*). A number of social actors within each city agency (*PROCEMPA, SPM, SMAM* and *CRC/CARs*) are responsible, either individually (as *subjects*) or collectively (as a *group category*), for implementing and furthering these urban policies. They reflect their political, professional, personal or collective interests and they form ties with particular types of social networks through social/ spatial

relations (*interpersonal* or *group*). The socio-cognitive ability they have to translate these social network links into digital relations within institutional *cspace/cyberspace* holds the key to laying down the right conditions for setting up new connections that might oppose the predominant networking logic.

The findings that emerged from the experimental interviews demonstrated that within the urban governance context of the Popular Administration, there are two significant socio-cognitive models that characterise the development of interpersonal and group social/spatial relationships. These include:

(a) *the traditional technocratic* interpersonal relations that are dominant between the subjects in the group categories *Te* and *Tp,* from *SU1* and *SU2.* These social actors are representatives of the technological elites in the context of urban governance. Their socio-cognitive skills encompass *heteronomous* social relations that result in the setting up of *sociocentric* networks that are operated by a number of fragmented interests, and which leads to higher degrees of professional specialisation and segmentation. They embrace the dominant producers and users of digital environments and, when setting up institutional digital relations, they tend to reproduce a similar pattern of social links within Intra-networks. Yet, they do not constitute homogenous group categories and there is a wide variation in their personal performance.

(b) *insurgent grassroots* interpersonal social relations, which are dominant among subjects from the group categories *Tc* and *Co,* in *SU3.* These social actors are representatives of the grassroots organisations which have sprung up from the popular movements and civil society, and been formed outside the traditional administrative structure of the municipality. Despite this, the *Tc* subjects have been incorporated into the sphere of government. In both cases, their socio-cognitive skills compose autonomous social relations, and they draw on their practical and shared experience of improving social relations in the local community. This helps the process of setting up grassroots networks and fosters a spirit of social cooperation which is required for their social integration. They comprise the group categories that have least access either to IT or the institutional digital environments and are still in the early stages of establishing digital relations. However, when they interacted with digital environments under research conditions, they showed a willingness to translate their grassroots community

network links into digital relations. Furthermore, the subjects in these group categories are more likely to share a common social representation and achieve consensus in decision-making processes, when faced with socio-cognitive conflicts in grassroots community networks.

These two socio-cognitive models can be postulated as being at the opposite poles of a large number of power relations that make up the dynamic equilibrium between the social actors involved in participatory practices in the context of urban governance. From this perspective, it can be established that the initial stage of the institutional *cspace/cyberspace* of the Popular Administration does, indeed, mirror this process. It highlights the fact that an equilibrium of social relations at a particular level can be achieved under certain contextual conditions, within a particular space and time. At the moment, this equilibrium is maintained by the local technological elites when they reproduce the traditional technocratic relations within *cspace/cyberspace*. However, the municipal strategy behind the IT partnership has opened up this process and paved the way for a set of new connections which include social relations in the grassroots communities. Although it is still in its early stages, the first results of the partnership program of IT uses in 'municipal education' have shown that, new connections are required for the creation of new cultural codes if one is to achieve higher levels of socio-cognitive equilibrium leading towards *autonomy* and *intellectual cooperation.*

In view of the fact that there are two conflicting socio-cognitive models, the transitional phase, in the context of urban governance, can be defined by determining the nature of the different stages of participatory practices which can be found both outside and inside cyberspace. Before embarking on our empirical investigation, it was discovered that the participatory practices of the Popular Administration outside cyberspace, are the outcome of a collective and ongoing process of social learning; in other words, the participatory process was being shaped while the learning practices were being developed.[62]

As a result, participatory practices have been incorporated into each *unit of analysis,* with varying degrees of intensity, depending on the particular nature of the social power relations. Where the traditional culture of the technocratic elites is predominant,

[62] See Chapter 4: sub-section 4.3.1.

as in the case of the urban planning process (*P2*), the social learning process has been poorly assimilated both inside and outside institutional cyberspace. Paradoxically, where the social learning practices are predominant, as in the case of the participatory budget process (*P3*), the social forces expressed in the popular movement organisations have a degree of *autonomy* when it comes to *decision- making* about public expenditure in the *irregular city*, but have limited skills when it comes to tackling *problem-solving* tasks that affect the *regular city, as* this goes beyond their local experience. Thus, most of the innovative and challenging experiments aimed at improving popular participatory practices have occurred in the course of introducing the information management process (*P1*), and are the result of an attempt to bring together *direct participation* and *social learning practices* via the institutional expansion of *cyberspatial technology.*

## Conclusion

The purpose of this chapter is to discuss what contribution this thesis can make to improve our understanding of participatory planning practices in the realm of *informational space*. The inquiry is conducted in the light of the analytical generalisations that emerged from the empirical case-study of Porto Alegre.

The thesis starts out with a discussion of the theoretical conceptualisation of *informational space*, together with the rise of a new social structure - the *network society* (Castells, 1996). A review of the relevant literature suggested that the construction of a comprehensive and integrated social theory on *informational space* is still in progress, although a great deal of academic research has been carried out in this field in recent years (Batty, 1997 and Kitchen, 1998). We constructed a theoretical framework by drawing on the epistemological position that Lefebvre arrived at when working out his general social theory of space (1999); this made a methodological distinction between the *problematic* and the *practice* of space. Our way of approaching the *problematic of informational space* is to examine the impact of the information process on cities and society at large (Hall, 1999), while the *informational space practices* are about the ways in which these changes are affecting urban planning practices (Graham and Marvin, 1996). Our goal was to provide the theoretical basis for an analysis of the problematic of *informational space* with regard to urban planning practices, i.e. the impact of informational space on both cities and the participatory practices of urban governance which are aimed at social change.

In our study of planning practices in *informational space* and their local expression in the particular urban governance context of Porto Alegre, an attempt was made to bridge the gap between the practical and theoretical realms. Moreover, this epistemological position led us to design a theoretical framework which was based on a multidisciplinary approach that formed a link between *information technology* and three fields of knowledge - *urban space, urban planning and socio-cognition.* The conceptualisation of *informational space* was regarded as a social construction which manifested itself in the rise of a new social structure - the network society. In the context of this theorising, the focus of our study was on how to formulate a constructivist, socio-cognitive analytical perspective of the changes that were

occurring in social/spatial relations. These changes envisaged new methods of *cyberspatial social learning* which would greatly assist participatory planning and thereby help bring about local democracy and social justice. With regard to the practical realm, our research strategy was to focus on the empirical investigation of planning practices within informational space. From an analytical standpoint, participatory practices were regarded as being social/spatial relations, while changes in the social structure that alter these social/spatial relations in the local context of the urban governance of Porto Alegre, were the focal point of our study.

The second part of the thesis investigated the urban planning context of the network of Brazilian cities, and the way this has been affected by both the global information process and the new social structure. Here the focus was on how regional aspects have influenced the constitution of informational space. The particular case of Porto Alegre was discussed in the last part of the thesis and this included a qualitative investigation of local planning practices inside the *municipal informational space* of the Popular Administration.

The findings from the qualitative investigation supported the theoretical propositions of our multidisciplinary framework on the dialectics of social/spatial relations within *informational space* in that they enabled us to make significant analytical generalisations.

With regard to the interrelationship between urban space and *informational space*, it was possible to make analytical generalisations on two levels (a) the macro level that considered the impact of the networking logic between cities (b) the micro level, which consisted of an analysis of the impact of the networking logic within cities.

The macro study of the network of Brazilian cities has demonstrated that Brazilian society is undergoing a political/economic re-structuring process that runs parallel with the global *information process* and the *dominance of the networking logic* (Castells, 1996). Analysis of the data confirms that this convergence reinforces the pervasive pattern of social exclusion within an already highly segregated society. It widens even further the gap that exists between technological development and social underdevelopment, and is a process which bears out the findings of Castells' analysis

of global information process and the rise of the *network society* (1996). Although the constitution of *informational space* on a national scale in Brazil is still in its early stages, the pattern of social/ spatial polarisation in the distribution of the digital telecommunications infrastructure, which is the material support of this immaterial space, has already been apparent within the network of cities. It entails concentrating private and public expenditure on digital telecommunications within the major nodes of the national network (metropolitan regions). This pattern of spatial polarisation is consistent with the similar findings reached in a study into the impact of new telecommunications technology on European and North American cities carried out by Graham and Marvin (1996).

The analysis of the available data also revealed that, in the case of Brazil, an IT policy has only recently been implemented and it is designed to monitor and stimulate public-private partnership strategies aimed at enlarging national cyberspace. Our analysis of these macro-strategies suggests that the issue of IT and the expansion of *informational space* have now become a part of the national political agenda. We found no major indicators to show that governmental strategies were geared towards the social use of IT, apart from the nationwide educational programs. In the case of Brazil, the social/spatial polarisation associated with huge cultural disparities and a lack of connections between the different regional nodes, leads us to agree with Castells (1996) in the position he holds about the role of governments in the network structure (morphology and topology). How far any nationwide IT social policy can enlarge cyberspace, depends on the extent to which social movements are able to form *networks of social change* to combat the dominance of the networking logic and take advantage of its main morphological and typological characteristics - *openness* and *inclusiveness*. This question is bound up with changes in the nature of social struggle (i.e. the ability to create cultural codes) within *informational space*, in accordance with the dynamics of these new social structures within urban space.

A number of analytical generalisations were made on a micro level, on the basis of findings which emerged from the qualitative investigation. This investigation aimed to establish the interrelationship between the network structure within *informational space* and the urban space structure inside a particular city. The study of changes in social structure (as in the case of Porto Alegre) has illustrated that there are

contradictory elements between the nationwide political process of economic re-structuring and the regional process of a political/economic re-organisation of the Brazilian municipalities. The case of Porto Alegre is unique on account of the particular political aims of the local government which is opposed to the national re-structuring policy, while the Popular Administration has been carrying out a policy of its own over the last ten years.

The re-structuring policy of the local government gives priority to organised grassroots practices of direct democracy which are combating social/spatial segregation and polarisation within the urban space structure. The empirical findings showed that, in the case of Porto Alegre, changes in social/spatial relations have started to take place in the urban space structure, in a process which involves setting up the *Participatory Budget*. The participatory movement was set up prior to the development of *municipal informational space* and has ensured that, to some extent, the configuration of *informational space* under the impact of new communications technology, has followed a similar pattern. Although still in an embryonic phase, both the municipal IT policy and the implementation of the digital telecommunications infrastructure has conformed to a model that is striving to oppose social spatial polarisation, on a city scale.

The empirical findings also made clear that, the implementation of the municipal IT policy adhered to a dialectical process where there is a dichotomy between the *regular* and *irregular* city which is still the dominant pattern in the urban space structure. The analysis of the data showed that by changing the equilibrium of social power relations, the participatory process has shifted the balance of municipal expenditure in favour of the needs of the poorest areas in the *irregular* city. However, it has still failed to reverse the endogenous pattern of social/spatial segregation that characterises the urban space structure and which stems from the huge social inequalities of Brazilian society. Nevertheless, it has managed to bring about an immense cultural change in the pattern of social struggles and grassroots community organisations, and this may well sow the seeds for grassroots networks within *informational space*.

Our analysis of the interrelationship between urban planning practices and the constitution of *informational space* has enabled us to make a number of

generalisations. These generalisations are the outcome of paradigmatic changes and reveal that there are two different epistemological approaches to participatory practices within urban planning (Sandercock, 1998). They encompassed the dialectical debate inherent in two models for planning practices which stem from rationally conflicting paradigms (a) *instrumental rationality,* which is based on the transmission of knowledge through the exchange of information (b) *communicative rationality,* which relies on the construction of new knowledge through an exchange of ideas.

The findings from the qualitative investigation allowed us to conclude that the model of instrumental rationality was still very much alive among the institutional urban planners and practitioners, although a paradigmatic shift has been taking place in the way the social practices implicit in the Participatory budget process have been put into effect. The instrumental rationality was especially noticeable in the planning methods of the administrative staff who were involved in designing and implementing the new master plan (PDDUA). Evidence was found that in the different City Hall departments the two approaches were able to run parallel with each other because they maintained a dynamic equilibrium in power relations. This tended to vary in accordance with the nature of the social relations of the social actors engaged in urban conflicts and the group interests they reflected in the social struggle between the *regular* and the *irregular* city. Our empirical findings are consistent with those of Sandercock (1998) in her analysis of the paradigmatic changes taking place in planning practices and the ways in which urban planners have been exploring new ideas about social changes in multicultural and divided societies.

The *communicative rationality* approach to participatory practices within the context of urban governance is associated with the organisation of grassroots social movements of *citizen insurgency* (Holston, 1999) and changes in the organisational forms of *civil society* (Friedmann, 1998) for solving the problem of social inclusion. These social/spatial relations have occurred outside the bureaucratic structure of the state but, in the case of Porto Alegre, the representatives of social movements have managed to break into the municipal structure and obtain varying degrees of power in the different governmental departments. The analysis of the data showed that the *instrumental rationality* model prevailed in the administrative departments where the technocratic elites controlled both power relations and access to relevant planning

information (SPM, SMAM and PROCEMPA). In contrast, the *communicative* model was predominant in the departments where the social actors from the grassroots communities and the civil society organisations had obtained political power (GLAPAN, CRC and CAR). Despite this, the role of these social actors, when working inside the municipal structures, was more that of political activists rather than technical, urban planning advisors, which implies that they still had limited access to relevant planning information.

The empirical evidence bears witness to the fact that, despite a political will, the municipal IT policy has not been applied to the grassroots community organisations with a sufficiently appropriate digital infrastructure to ensure free and open access. As well as this, it has had to face serious shortcomings in infrastructure (material, social and political) when attempting to achieve this goal. This was borne out in our analysis of the program for municipal administrative decentralisation. The analysis of the data confirmed that the technocratic elites not only have better access to IT infrastructure but also have control over the production and exchange of municipal information. This was in line with the traditional instrumental rationality model and also consistent with the findings from the analysis of the municipal programme of GIS implementation and the translation of real places (mostly from the *regular city*) into computer spaces (*cspace*).

Another discovery has been the first signs of a configured municipal policy for the social uses of IT. This consists of implementing public partnership strategies for carrying out social learning programs involving grassroots community and civil society organisations. However, the implementation of a comprehensive municipal IT policy that could parallel and support the development of participatory practices has not been put into effect yet. The analysis of the research findings provided no significant evidence to show that participatory practices had been translated into *municipal cyberspace*, apart from the ephemeral information on the Participatory Budget process, which was displayed in the City Hall web site at that time. In this perspective, it can be concluded that the general features that make up *municipal cyberspace*, in the case of Porto Alegre, follow the pattern of similar experiences in the rest of the world. The existence of a general trend in this direction has been shown by Graham and Marvin (1996), in an analysis of the initial institutional uses of

cyberspatial technology in the planning practices of European and North American local governments.

Finally, when considering the interrelationship between socio-cognitive structures and the constitution of informational space, we drew up a number of analytical generalisations on the basis of the theoretical conceptualisation of *networks of social change* within *informational space* (Shaw & Shaw, 1999). In our view, there is a need to define an epistemology of social learning for planning practices so that it is possible to design a *socio-cognitive constructivist* approach for social learning in participatory practices (Piaget, 1995).

From our standpoint, *social power relations* can be defined as the main focus of participatory planning, and *knowledge* as the central issue of power relations in the *information society* (Castells, 1996). Participatory practices can be defined as a form of political activity that embody values and assert power through social relations, i.e. by the endowment of rights and responsibilities through the collective actions of citizens. The rational scientific approach operates in the context of urban planning and deploys powerful arguments for the analysis and management of everyday urban problems. However, the use of impartial reasoning as a mean of ensuring fairness has systematically failed when addressing the collective concerns of Brazilian cities (*regular/irregular*), which are full of serious social/spatial contradictions and sharply divided. This is why we believe that *social power struggles* could be empowered if new planning knowledge was constructed within participatory planning practices. In this perspective, the collective action of *consensus building* (Moscovici, 1994) can be seen as a dynamic outcome of urban social and cognitive conflict, as well as being supported by collective decision-making which receives added strength from the social learning practices within the planning process.

In the case study of Porto Alegre, the qualitative approach which was adopted for analysing the social/spatial relations in the municipal digital environments allowed us to discern basic patterns of socio-cognitive structures within these interactions. Two contrasting patterns of socio-cognitive structures have been identified in our analysis of these findings: (a) *heteronomous* interactions, which characterise the technocratic social relations within the *traditional* administrative networks (b) *autonomous*

interactions, which comprise the grassroots social relations within the *insurgent* community networks. The analysis of the data also suggested that these models represent the socio-cognitive structures that are operating within interpersonal and group social relations, both inside and outside the digital environments.

The study of the various analytical categories of social actors involved in the urban governance of the Popular Administration showed that the local technocratic elites tended to conform to the *traditional networks* which are based on the model of instrumental rationality (formal operations). This is in line with the pre-determined and external set of regulations that lead to a one-way intellectual relationship, which is antagonistic to the development of *intellectual cooperation.* In contrast, the *insurgent networks* have tended to be made up of the leaders of the grassroots communities; these networks draw on practical experience (concrete operations), by following self-regulated norms that encourage cooperative practices (moral solidarity), but do not ensure intellectual exchanges.

The data reveals that the first model was dominant; moreover, it has been reproduced inside the institutional digital environments and consists of a number of specific Intra-networks for each municipal department. The second model was firmly grounded on the community and civil society organisations, although as far as digital environments are concerned, it was still in its early stages, and consisted of single nodes that lacked any networking connectivity. In both cases, it was also confirmed that there was a general lack of networking connections and exchange of information in the municipal digital environments.

The analysis of these experimental findings suggests that planning practices in Porto Alegre are going through a transitional phase, i.e. moving away from the *traditional social learning* model (based on instrumental rationality) towards a *constructivist social learning* model (based on socio-cognitive rationality). These changes in planning practices have been running parallel with two important processes: (a) the strengthening of a *direct democracy model* of urban governance, which has been in progress for more than ten years (b) the constitution of *municipal informational space*, which was still in its early stages at the time the research study was carried out.

Although these three processes converged when they were at different stages of development, they have created an awareness of the socio-cognitive nature of power relations within the dialectical process of building up institutional informational space, - a process which is aimed at the empowerment of citizen participation in urban governance. If direct democracy practices are to be reproduced and expanded in institutional cyberspace, the new planning knowledge resulting from the success of insurgent citizen participation will have to be translated into new cultural codes that enable the disconnected nodes to be linked to the city network.

Our investigation of the case of Porto Alegre suggests that this can only be achieved by the direct and *active participation of citizens in cyberspace*, particularly the disempowered. Inasmuch as interaction within digital environments requires a socio-cognitive process of building mental abstractions, it might be possible to enable citizens to learn from their own practice of creating *grassroots social networks*, while forming new meaningful digital social relations. This is why public policies, particularly local government urban policies, play a crucial role in the constitution of *informational space* and also why it might involve a social dimension for IT purposes.

This thesis does not intend to lay emphasis on urban planning policies of a technocratic nature, which are derived from an instrumental rational approach; it is concerned rather with acquiring a more social, *learning-based understanding* of the role played by *insurgent participatory practices* of governance in *informational space* - the arena in which new cultural codes might be devised to allow a link to be formed between the diverse nodes of a divided society.

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# Appendices

**Annex 1**

**Summary of the Interview Schedule**

**Instrument 1 (translation)**

**Date:**
**Time:**
**Institution:**

**Questionnaire**

**Data of Identification**

**1.** Name: _____

**2.** Age: _____ **3.** Sex: M ☐ F ☐

**4.** Occupation: _____

Pop Adm ☐ Olivio _____ Not Pop Adm ☐

Tarso _____

Ponte _____

**5.** Academic Background: _____

**Familiarity with the use of Personal Computers**

**1.** Do you use computer tools in at work ? Yes ☐ No ☐

**1.1.** Which ones?

| | | |
|---|---|---|
| Word processor | | |
| Image processor | | |
| Digital design | | |
| GIS | | |
| E-mail | private | professional |
| Internet | private | professional |
| Others | Which ones? | _____ |

**2.** Does you use computer tool at home? Yes ☐ No ☐

**2.1.** Which ones?

| | | |
|---|---|---|
| Word processor | | |
| Image processor | | |
| Digital design | | |
| GIS | | |
| E-mail | private | professional |
| Internet | private | professional |
| Others | Which ones? | _____ |

**3.** Use frequency

**3.1.** professional:

| | |
|---|---|
| daily | number of hours: |
| weekly | number of hours: |
| monthly | number of hours: |

**3.2.** private:

| | |
|---|---|
| daily | number of hours: |
| weekly | number of hours: |
| monthly | number of hours: |

**Image of the Popular Administration**

4. Please indicate, in order of importance, the three principal accomplishments in each period of the Popular Administration in Porto Alegre:

**4.1.** Olívio Dutra's administration
**4.2.** Tarso Genro's administration
**4.3.** Raul Ponte's administration

5. Please indicate, in order of importance, the three principal accomplishments of the Popular Administration during the whole period of PT administration in Porto Alegre up to the present.
6. Please indicate, in order of importance, the three principal accomplishments of the institution where you work, during the whole period of the Popular Administration in Porto Alegre up to the present.
7. Please indicate, in order of importance, the three principal projects of the institution where you work, for the present period of administration.

**Open interview** (main topics)

1. Popular participation - Participatory Budget
2. Participatory Planning and the PDDUA
   The City Congress - regional plans and strategies
3. Informational Process and the GIS Program
   The Information System and Urban Management
   The Program of Municipal Decentralisation
   Main Urban Policies, Programs and Strategies
4. The Virtual City Hall and the Internet use for institutional purposes and community participation

**Annex 2**

**Summary of the Interview Schedule**

**Instrument 2 (translation)**

**Date:**
**Institution:**
**Time:**

**Experimental Interview (clinical method)**

Data of Identification (same as Instrument 1)

**Semi-structured Interview**
(main digital environments and general questions)

**1.** Digital Map of Porto Alegre (PortoGeo, PROCEMPA's GIS application)
**1.1** Representation (meaning)
Have you heard about PortoGeo?
What do know about it?
Do you have access to it? Do you believe you are well informed about it? How?
When you need it - what do you do?

- Where you can get it?
- Is it easy to get it? Why? What are the difficulties?
- What do you like best when you see the screen? Photos? Graphics? Texts? Drawings?

**1.2** Judgement (explanation)
Is the information reliable?
How should it be done to be more reliable?
Can the lay citizen interfere? How?
Do you think you can get something useful from PortoGeo?
Do you think you can use Porto GEO the way it is now? Is it useful? What for? Could it be improved? How?
Which is the information you would like to get from it? How?
Do you know other GIS application for Porto Alegre? Which ones? How they can be used? Who does use them?

**1.3. Cooperation (reason)**
Do you use PortoGeo to get and exchange information? How? At work or with other people?
Do you use PortoGeo regularly? How? Where?
Do you think lay people could use it? How? Where?
Do you think the use of PortoGeo could improve your daily work? How? What about the lay citizen? How?

**2. Virtual City Hall of Porto Alegre Web site (Internet)**
**2.1 Representation (meaning)**
Do you use the WWW? How? Why?
Have you ever seen the Virtual City Hall Web site? What do you know about it?
Do you have access to the www.prefpoa? Do you think you are well informed about it? How?

When you need to access it
- what do you do?
- Where you can get it?
- Is it easy to get it? Why? What are the difficulties?
- What do you like best when you see the screen? Photos? Graphics? Texts? Drawings?

**2.2 Judgement (explanation)**

Do you think the information at www.prefpoa is reliable?
How should it be done to be more reliable?
Can the lay citizen interfere? How?
Do you think the www.prefpoa is useful? How? Why?
Could it be improved? How?

**2.3 Cooperation (reason)**

Do you use www.prefpoa to get and exchange information? How? At work or with other people?
Do you use www.prefpoa regularly? How? Where? Why?
Do you think lay people could use it? How? Where? Why?
Do you think that www.prefpoa could help in your daily work? How? Why? And for the lay citizen? How? Why?

## Annex 3

## The Public Hearing at Assis Brasil Region

***Box 1* - Public Hearing: Carrefur Hypermarket**

*Date:* 03/12/1998
*Local:* Metallurgy Trade Union, Porto Alegre, Brazil

*Participants:* open to the general public
Municipal Secretariats of: Environment, Planning and, Commerce and Industry
Group Carrefur (technical consultants and directory)
Local leaders of community associations
Local entrepreneur leaders
Local community councillors (Popular Council of the North region)
Municipal councillors

The public hearing event was sponsored by the City Hall as part of the negotiation process that aimed to evaluate the request for planning permission by the Carrefur group to construct a Hypermarket in the North zone of Porto Alegre. This was the first investment of the commercial group in the city and the goal was to construct a hypermarket in an empty private plot, within an urban regeneration area (Assis Brasil). The main concerns of the municipal administration were related to the social, economic and environmental impact on investment in the region and the city as a whole.

The planning instruments available for the technical evaluation of the urban impacts of this scale of investment were not clearly defined. However, in the light of previous experiences, the City Hall implemented a special ordinance law which required the investor to draw up a 'report to assess the impact ' before planning permission could be granted. The objective of the meeting was to examine Carrefur's report and to hold a public debate among all interested groups.

The area proposed for the development project had been the centre of major public investments in recent years, and consisted of major road works to improve accessibility in the region. The geographical position of the site meant that it could be linked to a main motorway, that provides the North axis which links the city to the rest of the country, as well as other municipalities in the metropolitan region. Regarded from the perspective of the interests of the local economy, the Assis Brasil region has also been traditionally associated with family run businesses and small entrepreneurs.

The strategy of the Carrefur group was first of all to get the agreement of the local community through direct negotiations with the Popular Council of the North Region and, then apply for planning permission at the City Hall. Carrefur provided an impressive and persuasive multimedia report which highlighted the positive aspects of the scheme (including new job opportunities) and argued that these outweighed negative factors (such as noise and air pollution, and traffic congestion), which could be addressed in the design of the final project.

The City Hall co-ordinator of the hearing event opened space for the audience to be heard. The debates centred on political and ideological aspects of the investment (monopolist capital, against small business), but did not present any analytical arguments against the technical evaluation presented by the investor. After the debates the meeting co-ordinator announced that the proposal would require further analysis by the municipal departments involved and all contributions made would be considered.

# Annex 4

## The 1st Forum of IT Education at Vila Restinga

***Box 2* - 1st Forum of IT and Education: Vila Restinga**

*Date*: 03/12/1998
*Local*: Salão Paroquial da Igreja N. S. da Misericórdia, Porto Alegre, Brazil

*Participants*: open to the Restinga community
Students and teachers of Ildo Meneghetti School
LEC's co-ordinator and research members

The end of year event was held by the students and professors of the Ildo Meneghetti School to present and discuss their academic work, using IT technology. This is a State school located at Vila Restinga (a low-income area in the South region of Porto Alegre), which is taking part in the Pro-Info program coordinated by LEC. With the support of the program, the school has implemented a computer lab and structured its local network, which is made up of fifteen multimedia PC machines, scanners and printers. However, the lack of telecommunications infrastructure in this region of the city has delayed the implementation of the Internet connection. This means that some students have used LEC's material infrastructure at the Federal University Campus, in the city centre, during the academic year to access the Internet, under experimental conditions.

All the academic work was undertaken in the light of LEC's methodology of *'doing research projects'*. The students carried out group work, under the supervision of LEC's members in cooperation with the School staff. A range of subjects of varying complexity was chosen for the students' research projects, depending on their academic level, age group and particular interests. The subjects included: *'reasoning', 'afro-religions', 'medicinal plants', 'road safety', 'trees and the spring time at Restinga'* and, *' the Cave Man'*, among many other projects. They used IT tools to conduct their research work and exchange ideas and information on the Internet with other Portuguese-speaking fellow students, including some from Portugal.

A good example of the constructivist approach in the use of IT was observed during the presentation of the Cave Man project, which was carried out by a group of children aged 7-8 that during the process learned how to read. Their work consist of digital drawings to express the results of their research about the Cave Man. A little boy aged 7 did the presentation showing the drawings on the screen computer. The image was amplified and projected on the wall for the audience to see at the same time. While the boy explained the meaning of the group drawings Cs2 asked him some challenging questions:

- *Did the cave men use to draw on the cave walls? Why? What did they draw?*

The little boy looked seriously at his own drawing projected on the wall. Though for a moment and then answered very positively, while still looking at the drawing:

- *Symbols!*

Cs2 continued asking to explore the concept of *symbols* further:

- *What is the difference between drawing on the computer and on the paper?*

The same little boy answered quickly:

- *They didn't rub them out. They kept tem save in the memory. We can retrieve them whenever we want!*

Cs2 asked the little boy:

- *Can it be changed?*

The little boy promptly replied:

- *Yes, it can! It can be used to create new things. We can keep them, but at the same time send them to somebody else so they learn something too.*

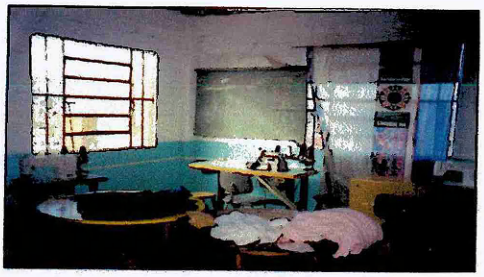
From that point on Cs2 started a debate with the audience (teachers and students) about the cognitive mechanisms that were being developed in this kind of academic exercise with regard to the development of spatial representation and how the use of the technology can improve the development of reasoning.

## Annex 5

# The AMOVICS' Computer Lab at Vila Cruzeiro

***Box 3* - AMOVICS' Computer Lab: Vila Cruzeiro**

*Date:* 08/01/1999
*Local:* AMOVICS, Vila Cruzeiro do Sul, Porto Alegre, Brazil.

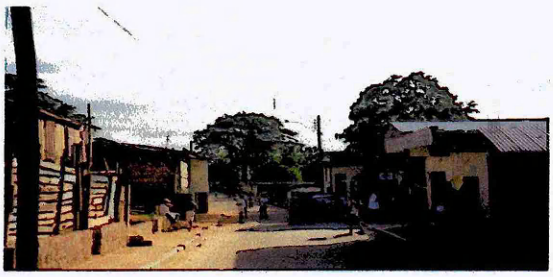


AMOVICS' Computer Lab consists of a local network of 12 PCs with multimedia features, 1 colour printer and Internet access via a phone line. This is installed in a small room on the second floor of the association headquarters next to the sewing room. The upper floor of the building is designed to cater for the learning programmes and comprises a large communal meeting room, with TV and sound equipment and, another small room for child care activities, as well as a kitchen and bathroom facilities. The Vila Cruzeiro Health Centre, which is also run by the association, through another agreement with the municipal health system, is situated on the lower ground floor and has direct access to the main street.

When I walked into the computer lab, two teenage girls (who are both Cs3's daughters) were sitting in front of the PC's screens. The oldest girl was browsing the Internet while the second was playing around with knick-knacks. I asked them what they were doing and the first answered that she was looking for a summer job at the Web. In contrast, the second girl told me she was searching through theatrical costumes to find something to wear for the Carnival parade.

I found out that they had both attended AMOVICS' vocational course and asked them if they would mind showing me how they used the computers, which they kindly agreed to do. They told me the course had 25 students divided into two classes, which were spread over two 4-hour periods, 5 days a week, one in the afternoon and the other at night. These activities supplemented their regular school timetable. They also told me that the course had taken place in the previous six months and that, although everybody had completed it, not all of them had learned how to work with computers by themselves. This was apparent from my observation of the differences in performance between the two girls, even though they were less than one year apart in age. While the elder sister was able to show me some work the students had carried out, within their different Web pages, the younger one got confused and was not even sure how to open the Internet, browse, or even access her own e-mail box. However, they both felt stimulated by what they had achieved during the course and were willing to make further progress on a future occasion.

When I asked if they had done any work related to the association, they revealed that they had produced a local newspaper, although not published on-line. They said that they did start to build a Web page for the association, using multimedia features, but they did not have access to this work as the teacher kept it at the end of the course. Nor they did have access to the Web page of the association because it was de-activated after the course.



## Annex 6

# *Tel* 's Experimental Interview at PROCEMPA

***Box 4 - Tel* Interview**

Date: 10/11/98
Site: PROCEMPA, Porto Alegre, Brazil.

*Experimental situation:* the subject and the interviewer are sitting at *Tel's* working station while he shows the homepage he is building.

***Tel*** – Here is the PROCEMPA Intranet; all the internal departments have their pages here and we have free access to the server. So I am designing a homepage for the SIG Poa and PortoGeo projects, where we can see every kind of information that we have created.

*int.* - But, it's only PROCEMPA that can have access to this information, is that right ?

***Tel*** – Yes just PROCEMPA - the other organisations aren't linked yet. At the moment, each municipal organisation has its own Intranet. But we might make a part of this information accessible to them as well, for the City Hall organisations... not for society in general.

*int.* - Don't you think that it would be helpful if you exchanged your ideas and information with your colleagues from the other Secretariats while you are building this page? Or with the University, for instance?

***Tel*** - I wouldn't mind, personally... I have no objections. I believe that it's in the interests of everyone to develop web pages... It's not our wish for the institution to be supreme in this respect with regard to the community... I believe that, what we have to do is to make this information accessible... The question is that, at the moment, the municipality is not in a position to do this.

# Annex 7

## *Te6*'s Experimental Interview at CAR Partenon

***Box 5 - Te6* Interview**

Date: 22/12/98
Site: CAR-Partenon, Porto Alegre, Brazil.

*Experimental situation:* the subject and the interviewer are sitting in a small room surfing the Net and exploring the institutional site of the City Hall using the local PC and, operating PortoGeo application in the interviewer laptop, simultaneously.

*int.* - Is it possible to learn something through the Internet? What sort of things?
***Te6*** - I believe it is possible to learn to be... independent as well... to search for the information by yourself... And also, to learn to establish relationships with other people... with the world... I believe it opens a door, a wide door... that enables you to grow, if you have access to the Internet...

*int.* - How do you think this can happen? What is needed?
***Te6*** - I believe people should experiment... to have access and use the instruments by themselves...

*int.* - Do you think the CAR can work with the community using the Internet to learn things? What kind of things could they learn about?
***Te6*** - I believe they could do that. For instance, if somebody from the community comes here and sees his/her street on the screen... and, if he/she can find out about the work that is being carried out here or, that has already been done, she/he would be able to get this information by himself/herself. So the community can get the information they need to plan their activities better, by themselves...

*int.* - Can the communities exchange their experiences through the Internet? If so, how?
***Te6*** - I believe they can. They can get to know that they have similar problems in different regions and find solutions which are suitable for each region... Then they can know what is happening and why...

# Annex 8

## *Te3*'s Experimental Interview at SPM

***Box 6 - Te3* Interview**

Date: 07/12/98
Site: SPM, Porto Alegre, Brazil.

*Experimental situation:* the subject and the interviewer are exploring the institutional site of the City Hall, using the local PC and operating the PortoGeo application in the interviewer laptop, simultaneously.

*int.* - Considering your professional experience in community participation, do you think IT tools like these might help your work? If so in what way?

***Te3*** - Yes, because although you may have carried out a technical survey of a certain region, or a specific site, the community always bring you more elements... things that if you wish to design particular projects you need to take note of and add to your data. This is very interesting information that you can use as reference.

*int.* - How do you think community participation can work within the planning process?

***Te3*** - I believe the community should always be consulted and be informed about the things that we are doing from time to time... this is because I think the community can get involved by sharing information about its everyday experience of living in the area. However, I think the final decision must remain in the hands of the Secretariat of Planning, because it is only the Secretariat that can offer guidance to the community.

*int.* - Are you saying that participatory decision-making must take technical criteria into account as well as political?

***Te3*** - Technical criteria have become rather discredited nowadays and has given way to another criterion, the will of the people. The people are not really in a position to have a say ... whenever you go there, they tell you what they want in general terms and then they ask you to get on with the job, because in the end, this is what they are paying us for.

## Annex 9

### *Tc4* 's Experimental Interview at CAR Partenon

***Box 7 - Tc4* Interview**

Date: 07/01/99
Site: CAR-Partenon, Porto Alegre, Brazil.

*Experimental situation:* the subject is operating PortoGeo application on the interviewer's laptop and spend some time exploring the institutional site of the City Hall using the local PC. The interviewer offers assistance to the subject in both situations.

*(exploring PortoGeo)*

*int.* - Would you like to search for any particular information?
***Tc4*** - Does it have data on population or something like that?

*int.* - No, not in this application.
***Tc4*** - What about socio-economic data?

*int.* - No. Just the data that you can see on your screen.
***Tc4*** - But couldn't you add a lot more data?...You do have room for that, don't you?

*int.* - Yes, you could add the data you have to find out the information you need.
***Tc4*** - So I could know what public services are needed in each area?... how many schools each region has... how many students there are in each school... That would be fantastic! This would be of great value for us as we are working on the decentralisation... we need a tool like that, but with all the information, of course!

*(exploring City Hall web site and online services)*

***Tc4*** - Is this the right way to retrieve information about the municipal petitions? Is it possible to access this service here?
*int.* - I believe so. Would you like to give it a try with the petition?
***Tc4*** - Yes. So I have to put the number of the petition in there? Well let me try with one petition I have here. Shell I try?

*int.* - Would you like to try by yourself?
***Tc4*** - Let's see if it says the petition is here with me... Yes, it does!
And it has all the information.. IPTU..., addresses...

*int.* - Is this the kind of information you need for your routine work?
***Tc4*** - Yes, I was just searching for that... and I didn't know I could get it here!

## Annex 10

### *Co3*'s Experimental Interview at CAR Glória

***Box 8 - Co3* Interview**

*Date:* 05/01/1999
*Local:* CAR-Glória/Cruzeiro/Cristal,
Porto Alegre, Brazil.

*Experimental situation:* the subject is operating PortoGeo application on the interviewer's laptop and spends some time exploring the institutional site of the City Hall using the local PC. The interviewer offers assistance to the subject in both situations.

The subject is very talkative and engages in a process of free association while working on the computer, she decides to tell us a popular tale to illustrate her view of the role COP councillor have within the Popular Administration.

***Co3*** - Once upon a time there was a forest where nightingales and thrushes lived side by side.
The nightingales were regarded as the birds which were entitled to be singers of the forest. They were the only ones allowed to sing because they had a diploma, they could speak and they could sing on behalf of everybody.

One day a thrush turned up without a diploma, in fact without anything, - but he also wanted to sing. There followed a long argument in which the nightingales set themselves against the thrush.

All the nightingales came along and said - how come do you think you can sing if you don't have any diploma? You are not our spokesperson... you are not such and such...
And it works more or less like this, you know... a thrush can be found in every little corner... he is all over the place. So he does really know what is going on...

The thrushes are the councillors and delegates of the Participative Budget Council. In contrast, the nightingales have the power, the legal power because they hold the position of Municipal Councillors... But, as we understand it, the legitimate power resides with us.